Electrical Review

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# Sales Possibilities of Light Wire Electric Ranges

## Opportunity Is Submitted Whereby All Contractor-Dealers May Stimulate Demand for Electric Cooking Devices in Small Homes and Apartments—Proofs Presented by Jobber, Dealer and User

Young people starting out in married life are not the only ones who occupy small apartments and sometimes have to practice rigid economy in order to establish a modest savings account that will grow and later on carry them into prosperity. Many couples without children, or with but one or two, and many other couples who have reared their family and have seen them married off and in homes of their own, prefer the quiet, cosy comfort and convenience of the small apartment. It does not require so much work to keep the rooms neat and it seems easier to pay a lump sum monthly in rent than many small sums throughout irregular periods when one owns his own home. It is comfort and convenience that most people seek in this day and age, and it is admittedly true that electricity is responsible for the creation of most of those luxuries which contribute to that comfort and convenience.

Standard Light Wire Type of Range Installed in Small Apartment in Cleveland.

There is only one small reason today why every family does not use, among the many appliances, an electric range with which to do their cooking in the most sanitary, scientific, comfortable and easiest way. That little reason—the inability of many of the electric power stations to take care of the extra load—is fast disappearing before the efforts of the central stations to enlarge their plants and equipment, and extend their lines to meet the demands of many who are still struggling along in the "dark ages" because the lines have not been extended their way.

Until very recently the electric range has been rather beyond the purse of the average householder. It has been the idea of most housewives that they need about six hotplates and an oven with which to prepare the average meal. If there are but two or three in the family and they live in a small apartment, the price of the larger electric range has appeared too much for them, so they go along with the old cooking equipment and all its attendent inconveniences.

Recently there appeared on the electrical market something different in the line of cooking ranges—a range that at first thought appears to have been designed for a small family in the small apartment. But it now develops that this new range is fit also to find a place in most any home because of its simplicity and the application of the fireless cooker principle to save current. Because it appeared somewhat out of the ordinary, and because there appeared the possibility that this range would serve to hasten the time when electric cooking will become universal, ELECTRICAL REVIEW began a quiet investigation of its merits through communication with those who are selling the appliance and those who have given it fair and impartial trials. The results of this investigation are worthy the consideration of every contractor-dealer. There is disclosed to

them a very lucrative field which will lead to a much greater use of electric ranges and the hastening of the day when every family will possess an electric range.

### Description of Light Wire Range and Its Economy in the Home.

L. D. Smith, whose company, the Standard Electric Stove Co., of Toledo, O., produces what

**Cooking Demonstration With Model 301 Standard Light Wire Range in Salesroom of A. C. Day Electric Company, Cleveland.**

is known as "301 Model Standard Light Wire Range," was first appealed to for a description of the range. "The 301 model," said Mr. Smith, "is designed to be attached to a light wire circuit, preferably to a base outlet. Ordinarily, to cook meats, vegetables, etc., ranges have used 1500-watt burners, but by using a well-conceived and properly made cooker on the fireless principle one begins to cook their meat and vegetables 2 or 3 hrs. before meal time, with a 660-watt connection, using 40 watts for low if they like, or retained heat if so desired. This performance is out of the way, the food beginning to cook in approximately 20 min. after connection is made.

"Then comes baking, perhaps, and later frying, coffee making, etc. The routine of cooking, owing to the difference in time required to cook different foods, is such that one 660-watt plug connected is all that is reasonably necessary to cook an average meal, provided, of course, the appliance is constructed so that 660 watts will do the work. As a matter of fact there is no objection to two cords or push-on plug attachments, or even three being used from a base outlet on a light wire service.

"Users who have these outlets can secure all the cooking heat needed in the average city home to cook all the food the average man will buy. It isn't a question of how many B.t.u's. one has on 660 watts, but a question of how they are used. In my opinion the outfit is ample for about half of the families, and economical and convenient as an accessory in the other half."

### Opinions From Jobbers and Dealers Who Have Made Investigation.

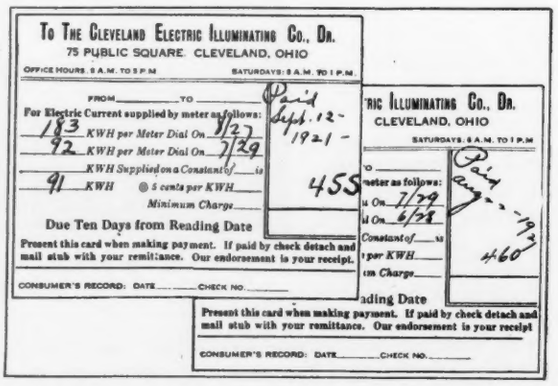
James F. Bacon, of the Iron City Electric Co., Pittsburgh, says: "Your letter inquiring as to the success of the No. 301 light wire range brought out by the Standard Electric Stove Co. has been referred to me for reply because of the fact that I have sold quite a number of them and have visited the homes where these ranges were installed after the sales were made to actually see if the range was satisfactory in its operation. In every case the range has done all that was claimed for it by the manufacturer. The manufacturer overcame an early difficulty in the making of coffee by installing a 6-in. plate on the upper shelf. The cooker and oven have been working fine, while the griddle hotplate has proved a revelation of efficiency.

"The light wire range is very suitable and convenient for couples who are doing light housekeeping, or for small families who live in with other people. It is of ample cooking capacity for these places. A study of a customer's requirements should always be made by the dealer before a sale is closed, as a satisfied customer will always come back for other articles.

"We have had no difficulty with inspectors or central station people in the installation of these ranges because they are sold equipped with only one cord and there is thus no danger of overloading an outlet. The cost of operating these small ranges with an average of a 7 or 8-ct. rate, for a family of three people, is about $2.25 per month and this is sufficient inducement for people to buy them."

### Dealers Enthusiastic Over Demonstration of Light Wire Range.

"We have sold upward of 70 of the No. 301 Standard light wire ranges in the last few months and our dealers are very enthusiastic over the sales possibilities of these stoves," says F. G. Lafferty, vice-president, A. T. Knowlson Co., Detroit. "About 2 mo. ago we invited 20 electrical dealers to witness a cooking test of the No. 301 Standard light wire range. We had made no advance preparation, only using the fireless cooker for cooking the meat and potatoes. The griddle



To The Cleveland Electric Illuminating Co., Dr.
75 PUBLIC SQUARE. CLEVELAND, OHIO
OFFICE HOURS, 8 A.M. TO 5 P.M. SATURDAYS: 8 A.M. TO 1 P.M.
FROM ____ TO ____
For Electric Current supplied by meter as follows:
183 KWH per Meter Dial On 8/27
92 KWH per Meter Dial On 7/29
KWH Supplied on a Constant of ____ to
91 KWH @ 5 cents per KWH
Minimum Charge
Due Ten Days from Reading Date
Present this card when making payment. If paid by check detach and mail stub with your remittance. Our endorsement is your receipt.
CONSUMER'S RECORD: DATE ____ CHECK NO. ____
Paid Sept. 12-1921
455

'ric Illuminating Co., Dr.
CLEVELAND, OHIO
SATURDAYS, 8 A.M. TO 1 P.M.
Paid
meter as follows:
u On 7/29
d On 6/28
Constant of
per KWH
m Charge
ading Date
460
Present this card when making payment. If paid by check detach and mail stub with your remittance. Our endorsement is your receipt
CONSUMER'S RECORD: DATE ____ CHECK NO. ____

**These Two Electric Light Bills Include Cost of Operating Light Wire Range.**

Reproductions of the August and September bills for electricity represent the cost to one consumer for operation of lights and appliances in a Cleveland apartment, including a Standard light wire range. The August bill was for $4.60 and the September bill was for $4.55.

we used for heating an ordinary percolator in which the coffee was made. We served roast beef sandwiches, potatoes and coffee. After the lunch we had a very enthusiastic discussion over the stove.

"We distribute the stove through dealers and

do not come in contact with the ultimate user. However, we called up one of our dealers and obtained the addresses of three users. Each one recommended the stove very highly and declared that, for a family of two or three, it would do anything one could expect of any other electric range."

W. S. Williams, sales manager of the appliance department of the Power Equipment Co., Minneapolis, is enthusiastic in his praise of tests made by him. He says:

"Our tests show the No. 301 Standard light wire electric range to be an excellent little stove. Some time ago we had 11 of our dealers in and we cooked a very nice meal of meat, potatoes, vegetables and coffee on this stove for them to demonstrate its capacity as well as its flexibility. The fireless cooker feature of this little stove is, of course, what gives it the capacity that it has, and the fireless cooker is one of the finest features that has been put on an electric range today.

"The oven of this stove is very excellent and comes up to baking temperature in 15 or 20 min. and does a beautiful job on roasts or in baking bread or pastry. It has a very uniform heat, is well insulated and seems to give entire satisfaction in every case. It is an absolutely safe appliance—you cannot overload it, and if every load on an ordinary house circuit came as near being a constant load as that applied to this range there would be little cause for anxiety."

T. Harry Lewis, vice-president of the Elliott-Lewis Electrical Co., Inc., Philadelphia, says:

"We are distributors for the entire line of Standard electric ranges manufactured by the Standard Stove Co., of Toledo, O. We have had very excellent success with the sale of the No. 301 light wire range and are extremely enthusiastic about its possibilities. We have always found a great amount of sales resistance on electric ranges from the central stations, but we do not have very much on the No. 301 range because it is an attachment plug device and does not require special wiring or special meter. It is our experience that the Standard stoves are living up to every promise made by the manufacturer and we are enthusiastic about the line."

The Elliott-Lewis Electrical Co. is now in the midst of an aggressive sales campaign with the Standard stoves. From W. H. Rush, manager, electrical department of the Luetkemeyer Co., Cleveland, there comes the following:

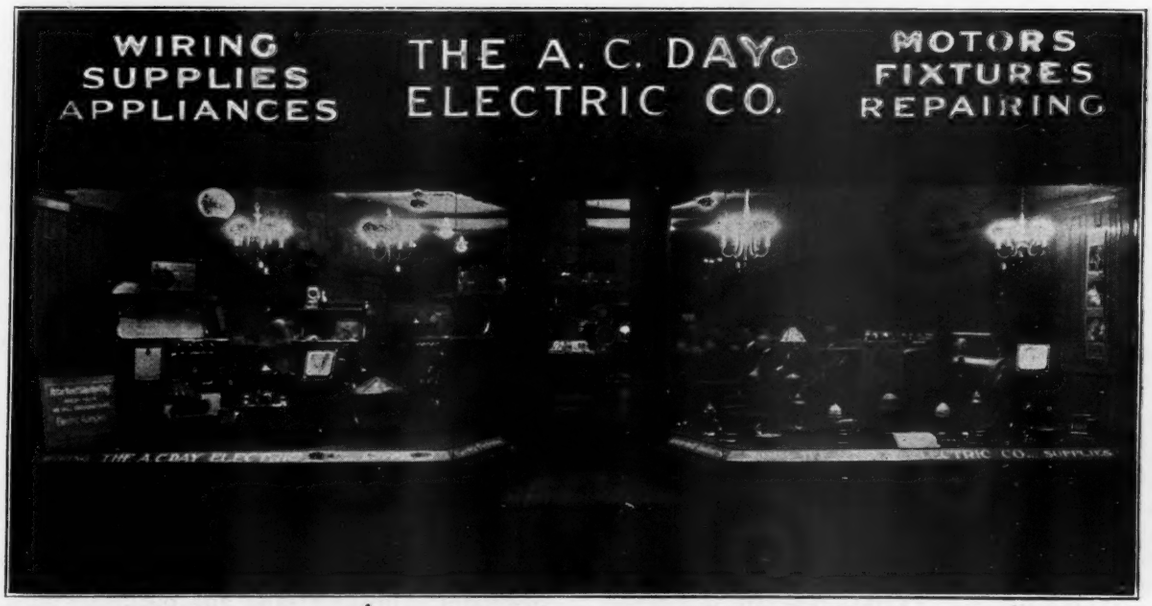
"This range, as you no doubt know, is of the 660-watt type, having a griddle or hotplate, an oven and a fireless cooker. Any one of these three is to be used at one time only. By following the directions which go with the range, and by taking full advantage of the fireless cooker feature, we have and can demonstrate that this little range can cook successfully sufficient food for the average family of five."

The purpose of this story is to point out to the electrical contractor-dealer the sales possibility of something that is comparatively new on the market in the belief that the ease with which such a device may be sold will stimulate trade all along the line for all other classes and types of electrical appliances.

## CAROLINA UTILITY WILL INSTALL ADDITIONAL UNITS.

W. S. Lee, vice-president and chief engineer, Southern Power Co., Charlotte, N. C., has announced that contracts have been awarded for the wheels and generators for the two new stations on the Catawba river. The first of these is an addition to the present plant at Great Falls, S. C., and will be known as Great Falls power house No. 2. The machinery contracts now let call for three units, each of 18,750-kv-a. capacity. The dam at this point is already constructed and the wheels will operate under a head of 72 ft.

The second new installation is to be made at a point 12 mi. from Charlotte, N. C., and will be known as the Mountain Island station. This will be an entirely new installation. The work required includes the building of a dam, penstocks,



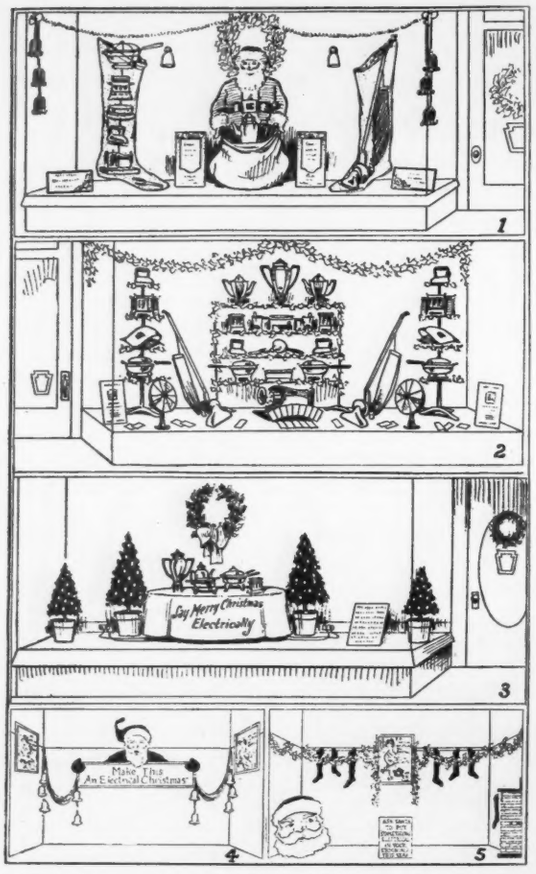

Night View of Store Front of A. C. Day Electric Co., Cleveland, Showing Standard Light Wire Range Exhibit in Left Window, Used for Public Cooking Demonstrations.

powerhouse, etc. Four 18,750-kv-a. units are to be installed. The head at this point will be 80 ft. The wheels and generators in the two plants will be of identical design. The wheel contract has been let to the S. Morgan Smith Co. and the generator contract to the Allis-Chalmers Manufacturing Co.

## BETTER HOLIDAY WINDOWS THIS YEAR THAN EVER.

**More Skill and Greater Care Shown in Dressing of Displays to Create the True Atmosphere Surrounding an Electrical Christmas.**

Holiday window displays planned for electrical shops this year will mean something—they will carry a sustained message of the dominance of electrical gifts for an electrical Christmas—and there will not be a meaningless or jarring note in

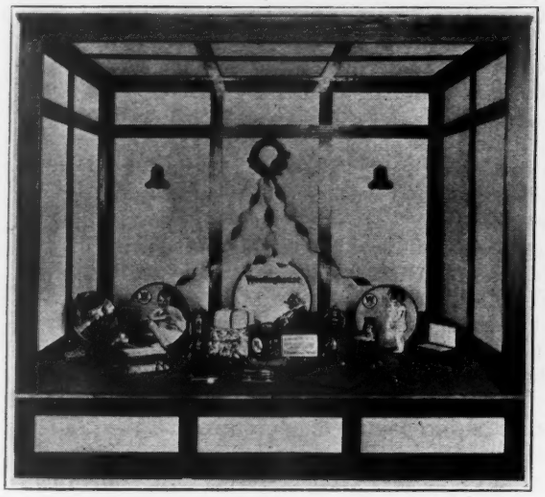



**Five Christmas Window Suggestions Furnished by the Society for Electric Development.**

them if the ideas and ideals of the designers are carried out with precision.

One of the simplest, yet most effective among the designs for this year's Christmas window is that of the Westinghouse, illustrated herewith. In the large center circle is the happy business man and father with electrical gifts on the top of his desk for members of the family. On one side, in a smaller circle, is the little "Cosy Glow" boy who suggests the pleasure to be had in the gift of an electric radiator. On the other side, in another circle, is the "Waffle Boy" with an appeal that should make all observers wish to present an electric waffle iron to mother and the girls. And it is all "tied in" so nicely with other small electrical devices for suitable gifts.

Suggestion No. 13, in the November issue of the *Monthly Sales Service* of the Society for



**Westinghouse Dealers' 1921 Christmas Window Trim.**

Electrical Development, is an article on the proper lighting of window displays entitled "Concentrated Selling Suggestions for Christmas." It will be noted that in the accompanying illustration of five designs for Christmas windows there is incorporated the Society's Christmas campaign Santa Claus cutouts and display cards in Nos. 1 and 4. They can be just as effectively used in the other three displays. All of the S. E. D. suggestions are self-explanatory and are just as effective for narrow or double windows, and can be modified and rearranged to suit individual tastes. "Do not crowd your window displays," is the admonition given.

Another illustration presented herewith is that of a display arranged by the Tampa Electric Co.,

**Holiday Exhibit of the Tampa Electric Co., Tampa, Fla.**

Tampla, Fla., last season during the Hoover window trimming contest. The fireplace and mantel were constructed with cartons containing the Hoover suction sweeper. The display was very successful in making sales and obtaining prospects, many of whom, throughout the year, became lucrative customers.

Night View of Show Window of Levy Electric Co., San Francisco, Showing Display of "Majestic" Electric Heaters.

# Domestic Development of Electric Air Heater Sales

## Demand for Electric Heating in Residences Is Far in Excess of Merchandising Effort on the Part of Contractor-Dealers—Manufacturers Prepared to Meet Demand for Efficient Devices

By WILLIAM B. EASTWOOD

**This article is presented with the full knowledge that many of our most highly trained and experienced electrical engineers—men who have conscientiously studied every phase of electric heating and have devoted years to research and experiment—are not yet prepared to advise the exclusive use of electricity for air heating in the home, office or factory. They advance very excellent reasons. Nevertheless, there is an insistent demand for air heaters on the part of that great public which has experienced some of the conveniences due to the development thus far attained in the electrical field. In an attempt to meet this demand a number of manufacturers have devised and are producing various types of electric house heaters that are not only finding a ready market where advertised and proper sales attention is given, but they are also rapidly paving the way for the fast approaching period when electricity will supplant all other sources of air heating.—EDITOR'S NOTE.**

Not long ago a number of electrical dealers were approached by a manufacturer's agent and asked as to the volume of business in electrical air heaters for the home, and the methods of selling them employed by the dealers. A summary of the information obtained by the agent disclosed the startling fact that, for every air heater actually disposed of through salesmanship on the part of the dealers, their clerks and house-to-house workers, 10 heaters were sold to customers who came into the stores and asked for the heaters after having seen them nationally advertised or in use in the home of a friend.

If the ratio of customer-demand for electric air heaters were only five to every one of the appliances sold through persuasion of salesmanship, or but one-half of the number reported by the manufacturer's agent, then the field has been very much neglected by the contractor-dealer. While the distribution of electric air heaters in homes, theater ticket booths, offices and like places is already large, it is safe to say that there would be as many heaters sold as there are fans, if not more, were the dealers alert to the possibilities for the heater.

Thus far the electric air heaters have practically sold themselves, yet in 75% of the area of the United States—because of the mildly temperate and semi-tropical weather—it is possible at the present time to employ electricity for heating to the exclusion of other means. Even in the zone

of extreme winter temperature many have found the electric radiator ideal for use during early spring and late fall, and during protracted mild spells in mid-winter. Because of the unusually mild weather that prevailed during last winter electric air heaters could well have been used exclusively throughout the entire country. And because of the mildness of the season last winter many more electric heaters were sold in the northern section of the United States and in southern Canada to people who found furnaces, coal stoves and steam and water radiators uncomfortably warm, while the electric heater could be so regulated as to temper the chill when necessary.

"Majestic" Wall Heater Installed in Reception Hall of Apartment.

Economically, the electric air heater has much to commend it in view of the present—and probably continued—high price of coal. It is only a question of a very short time when the central station companies will be compelled to take note of the demand for special service for the use of electric heaters and cookers. This demand is rapidly growing with the distribution of these appliances and, to meet it, the central stations in the larger centers of population are already preparing to enlarge their power plants and arrange for such service. Electrical construction codes are also being revised where they conflict with, or retard, the growing use of these appliances. In the zones of milder climate, particularly in California, electric air heating has come to be an established realization and central stations have no trouble in absorbing and distributing this additional load at a reasonable rate.

Large "Majestic" Heater Installed in Apartment Living Room.

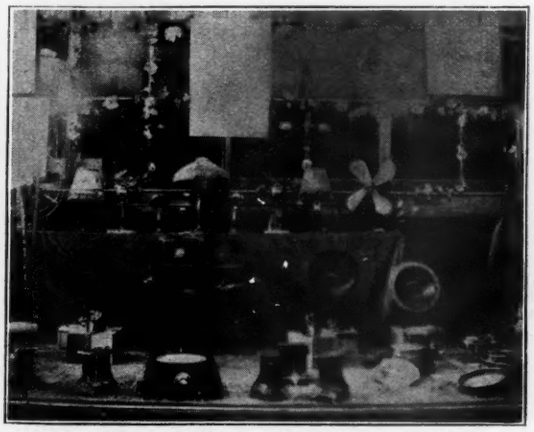
### Some of the Advantages of Heating the Home With Electricity.

Arguments for the use of electric air heating make these appliances an easy sales proposition for the contractor-dealer. There is nothing more convincing to the prospective customer than to assure him that the electric air heater in his home needs no special supervision. Thus the inconvenience and cost of attendance is eliminated. There is no fuel to be carried in with consequent noise, dirt and fatiguing work. There are no ashes to remove, and there is no soot, smoke or dust connected with electric heat. As a result, there is no redecoration of the rooms necessary

until the family tires of the existing designs and patterns.

Electric heat does not vitiate the air. Ventilation can be regulated with a certainty as no allowance need be made for oxygen consumed or fumes given off. This means better health and greater vitality—fewer bills for doctors and medicines. With the portable heater—or with the stationary radiators installed in the various rooms of the house—the heat can be localized; that is, applied when and where it is required without trouble or inconvenience.

Electric heat is instantly effective—no need to start "fires" several hours before warmth is desired—10 or 15 min. is all that is necessary even in extreme weather. Any reasonable degree of heat can be obtained and maintained if the installation is properly calculated. Electric heaters. both the portable and built-in types, are an ornament in any surrounding. The cost of the maintenance of electric air heaters is very low—much less than the maintenance and depreciation of fuel-burning stoves or furnaces—and the depreciation is almost negligible. With the electric heater the time of use is absolutely under control, but with the furnace, either steam, hot water or hot air, the heat continues to be delivered in many cases long after it is required.



Electric Heater Display in Window of Burnham-Firth Electric Co., Edmonton, Alta., Canada.

At a heating and ventilating show put on by the New York Edison Co. in New York City last June hundreds of visitors were highly interested to learn how far advanced is the application of electricity to air heating. Every make of heater was represented. It was shown how, with the co-operation of architects and building contractors, stationary electric heaters are being installed in new buildings in the bathroom, boudoir, dressing room, nursery, dining and sitting rooms, halls, library, laundry, garage and other places where heat is required. The portable radiators were demonstrated to show the comfort obtainable by placing the heating device anywhere it is desired, being easily carried from one place to another in the room, and from room to room.

Small "Majestic" Heater Installed in Apartment Dining Room.

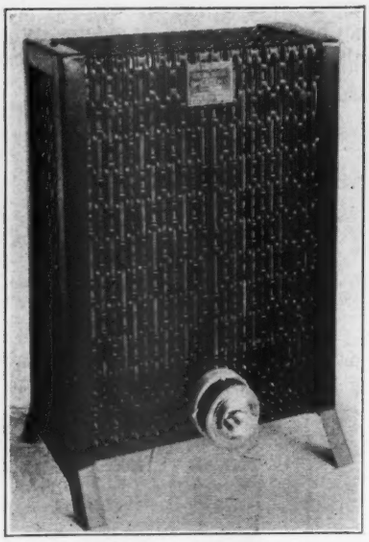
### Architects and Builders Are Taking Cognizance of Electric Heat.

Recently an issue of *Building Review* carried an article describing the advantages of installing stationary (wall) electric heaters in apartment buildings in process of construction. The article presented illustrations showing such an apartment, the rooms of which had been furnished with "Majestic" heaters. Co-operation between the electrical dealer and the architect had resulted in this installation, several views of which are herewith reproduced.

"Each apartment in the building," says the article in *Building Review*, "is equipped with 1400-watt heaters in the living rooms and 900-watt heaters in the dining rooms. They are built in the walls and surrounded by artistic frames. Hundreds of people who have inspected them are so pleased with their appearance and ornamentation to the room that they leave with a desire for similar installations in their homes. The heaters are wired to one meter and the current furnished without charge to the tenants. Recent modifications of the heating rates permit such an arrangement and the cost to the owners is small and far below that of steam heat. In the past few months this type of heat has been installed, not alone in apartment houses, but in the higher type of residences, hotels, schools, lodge halls and in almost every other type of building. No argument from

## *Some Types of Electric Air Heaters for the Home*

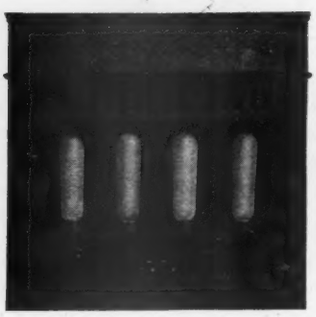
Air Heater, 1000-Watt, Type D, Style 280532, Westinghouse Electric & Mfg. Co.



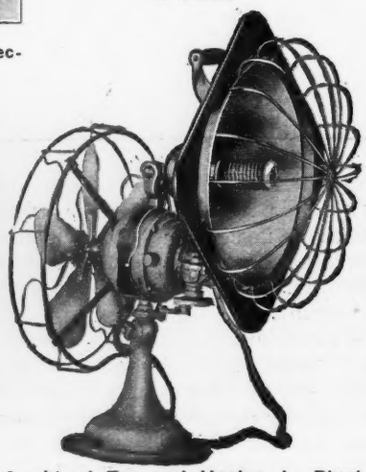
Apfel's 100% Electric Radiator, Electric Heating & Mfg. Co.

"Universal" Electric Radiator, No. 9955, Landers, Frary & Clark.

"Cosy-Glow" Radator, Style 278758; Westinghouse Electric & Mfg. Co.



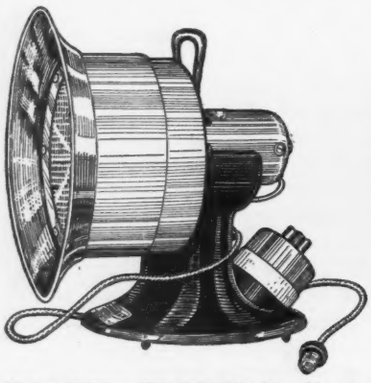
Mantel or Flush-Type Heater, Style 218051, Westinghouse Electric & Mfg. Co.



Combined Fan and Heater, L. Plaut & Co.

"Hold-Heat" Radiator, Russell Electric Co.

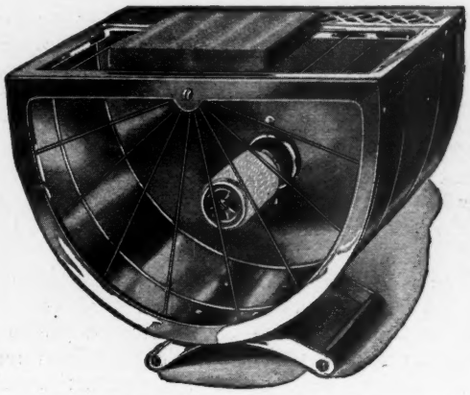
Rutenber Model 45, Heater, Rutenber Electric Co.



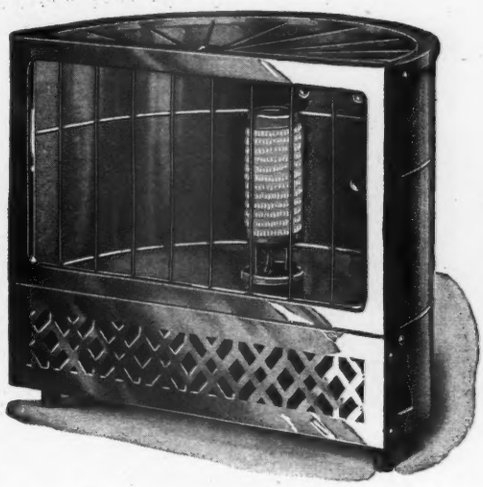
Motor-Driven Electric Heater, No. 9, Carmean Electric Co.

"Giolog" Electric Heater, Strait & Richards, Inc.

"Sunburst" Electric Heater, Estate Stove Co.



"Double Ray" Heater-Toaster as Toaster, L. Plaut & Co.



"Double Ray" Heater-Toaster as Heater, L. Plaut & Co.

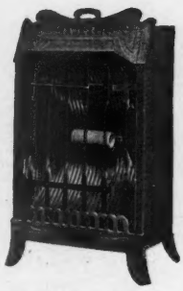
## *Electric Heaters Made by Majestic Electric Development Co.*

"Majestic" No. 11.

"Majestic" No. 7.

"Majestic" No. 8.

"Majestic" No. 9.



"Majestic" No. 4.

"Majestic" No. 5.

"Majestic" No. 6.

prejudiced parties should stand in the way of an exhaustive consideration of electric heat for new projects of any kind. Five years from now houses heated other than by electricity will not be considered modern."

### Some Principles of Electric Air Heating Outlined by Manufacturer.

Every manufacturer of electric air heaters in the United States was asked for information regarding their products and for illustrations of the types of heaters made by them. Many responded and, for the information of the contractor-dealer, Electrical Review presents in connection with this article the illustrations of those types submitted. These types include the portable parabolic reflector, the grate and the "blower" types, and the fire-log and the wall types of stationary radiators.

T. D. MacMullen, secretary of the Majestic Electric Development Co., San Francisco, sends clippings from a western architectural journal which indicate the way his product is being used in the West for domestic heating. He thus describes some of the principles of his product, sold under the trade name of "Majestic":

"Our heaters incorporate the reflection principle which so multiplies the efficiency of a kilowatt of current as to make it almost unrecognizable in its original proportions, for, contrary to engineering thought, a kilowatt can be expanded in efficiency by reflection just as a gallon of water becomes more efficient as a force when evaporated, and as a candle can be made to throw its rays beyond its original capacity by the use of a reflector. I do not mean by this, that the amount of heat discharged into a room by one of our heaters is greater than from any other type of electric heater of a similar electrical capacity, but the greater efficiency is there and is brought about through giving immediate results instead of waiting for the upper air of the room to be heated. Since the heater is more promptly effective, the radiation of heat in the room for the objects heated by reflection begins sooner and, therefore, gives greater results during the period in which the heat is turned on.

### Kansas City Contributes to Subject of Electrical Home Heating.

"To be more concrete, we have found that our heaters are capable of heating any ordinary room with about 25% of the volume of current ordinarily figured by engineers. There is no class of building that this heat cannot be adapted to and it is recognized that we have with our heaters raised electric heating out of the auxiliary heating class. As indicated by the excerpts sent you from architects' and builders' papers, our heaters are being used for schools, hotels, apartment houses, lodge halls, churches, theaters and every conceivable type of building in addition to residences. Electric heat is like the heat of the sun—it does not affect the purity of the air. A story might be written on the question of the power load alone, on domestic convenience alone, and on industrial uses which include fruit dehydration, milk drying, lithograph drying, incubator warming—and this very morning we were asked to heat a circus."

At a recent meeting of the Electric Club, of Kansas City, Mo., members of the club requested W. Harry Vance, of the Carmean Electric Co., to write something on the subject of "Heating the Home Electrically" for this issue of Electrical Review. Mr. Vance kindly complied by submitting the following:

"The days of heating by coal, with its accompaniment of smoke, dirty collars, expensive janitors and 'millionaire wash ladies' are, according to the signs of the times, nearing an end. These prophesies come from great men of the electrical industry, such as Dr. Charles P. Steinmetz, who promise their realization at no distant date. The writer has before him an excerpt from the Kansas City *Post* of March 21, 1921, which reads as follows:

"'The coalless city, the furnaceless home—often spoken of but generally referred to as a dream of the scientists—are coming in the near future, according to Dr. Charles P. Steinmetz, world's famous electrical wizard. Startling will be the change to come. The coal furnace fire is a source of trouble on cold days, the heat energy is hard to control. It takes time and energy to keep fires regulated. But, when heating is all done electrically, the temperature will be maintained uniformly regardless of the weather outside. All these changes in our domestic life will tend to revolutionize the appearance of our cities. No dirt, dust or smoke will be permissible and our cities will be more sanitary.'

"It has been reported upon good authority that some steam power plants are producing 1 kw. of electrical energy from 2 lbs. of cheap slack coal. In the light of this information does it seem reasonable to presume that the public will continue to pay the enormous transportation charges on coal from the mines when the current can be sent in over hundreds of miles of transmission lines? Then we have the switching charges, the drayage, the coal dealers' profit and the ultimate loss of about 50% of the heat units going up the chimney, not to speak of the ash pile. We cannot forget the upkeep of the heating plant nor the interest on its original cost—nor will the good housewife forget the drudgery of constant housecleaning, the soiled draperies and her furnishings in general.

"Many power companies have made special rates for cooking electrically, and when we consider that the heating period in most parts of the country covers about 8 mo. of the year, and used nearly every hour of the day, it seems that electric heating is going to be a desirable load. One electrical contractor in Kansas City reports to the writer that he has completed the wiring of two homes for electric heat within the last 30 days. The wiring provides 20-ampere base receptacles for the purpose of carrying electric heaters of 2-kw. capacity.

"The rapidity with which electric heating will be brought about rests largely with the electrical contractors of the country. The present wiring system is inadequate. It stands to reason that if we want real heat the wiring system must be heavy enough to carry the heating load. The contractor who insists on having his client install heavy wiring from this time on will be rendering a very valuable service to his customer and to the public in general."

# Ventilation in Industrial Plants a Field for Contractors

## Selection of Proper Equipment and Its Direct Application to the Many Processes of Manufacture Are Chief Considerations of Electrical Contractor in Making Installations in Factories

By JAMES H. CARBONE

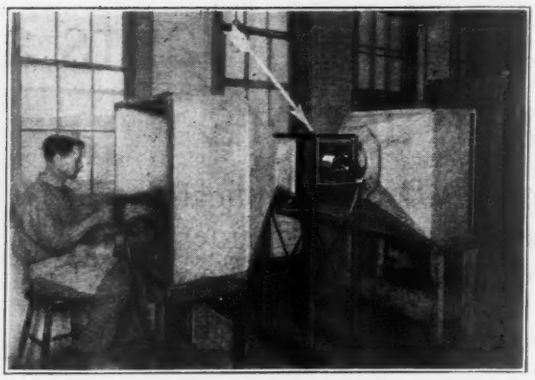
*L. J. Wing Manufacturing Co., New York City.*

Ventilation, generally speaking, might be defined as a systematic removal of foul or polluted air from a building, with a constant supply of fresh air to take its place. To be properly termed a system, however, it involves the continued application of these operations, at least during occupancy. This is true with any method of ventilation. However, in the consideration of industrial plants, shops, factories, etc., today modern machines and processes of manufacture have indeed greatly altered conditions for providing adequate ventilation, so much so that a special phase of the aforesaid operations must be considered.

The primary object of the ventilating system in industrial plants becomes of necessity the *direct removal of the vitiating elements at their source;* that is to say, from the machine or process from whence they originate. The removal of the injurious elements must be so effected that they do not in any way affect the operatives in the process of elimination. This cannot be done effectively by merely locating a directly-connected motor-driven "open type" exhaust fan in a wall, window or roof, for the reason that by so doing, the heated air, or air laden with smoke, dust, steam, vapors, fumes, etc., emitted from the machines or processes would be carried across a working space and consequently inhaled by the occupants before reaching the fan and being finally exhausted. Thus, such equipment is not only ineffective, but in many cases still further aggravates conditions, very often to the discouragement of the electrical contractor who plans and makes the installation.

In such installations it is essential that the vitiating elements be collected at the machines, vats, etc., before they have a chance to spread and pollute the air. It is necessary, therefore, that a hood of proper design be placed over the machine or process, connected by a duct to an exhauster conveniently located so that it will discharge directly to the atmosphere and away from the building. For this purpose, however, special equipment is necessary (as will be referred to hereinafter) and it is because the contractor has

Installation of Ventilation in Sewing Machine Room of Loft Occupied by Garment Manufacturer.



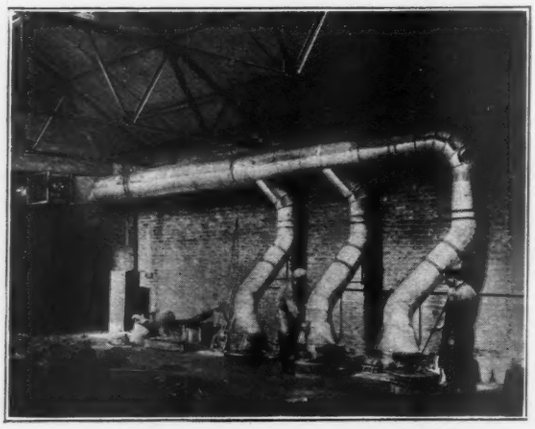
Doub'e Ventilator Installation for Exhausting Fumes in Paint Spraying Shop.

not fully realized this particular requirement that he may have met with difficulty in handling industrial ventilation problems.

### Larger and More Remunerative Work in Industrial Ventilation.

It is perhaps because of the added feature of the duct-work that the electrical contractor has been inclined to regard such installations as complicated or out of his line. Yet, this is not so. Many an electrical contractor has worked up a splendid business by co-operating in such things with his neighbor, the sheet metal contractor. There is no reason, therefore, why the contractor should confine his efforts to the general ventilation of stores, offices, residences, etc., requiring the installation of small wall or window-type exhaust fans, overlooking a larger market in the industrial field with increased profits and greater benefits.

If the electrical contractor will but consider the many and varied machines, such as kitchen ranges, vats, laundry machines, bakery ovens, tentering frames, cotton slashers, singeing machines, paint spray booths, etc., used in industries today, which constantly emit heat, dust, smoke, steam, grease, moisture, paint spray or acid fumes, and disagreeable odors, he will agree that they constitute by far the larger factor to be contended with, and that they are the root of most if not all evil. It is for this reason that the contractor should recognize the importance of taking on the additional construction work in order to sell to his own customers the electrically driven ventilating



Exhausting Poisonous Fumes from Melting Furnaces by Direct Method to Prevent "Spelter Shakes."

equipment which they will buy. What further knowledge the contractor desires as to layout of duct-work, size of equipment, etc., is readily furnished by the manufacturers.

If we consider the elements emitted by the various machines stated, and which must of course be handled by the exhaust fan, their injurious effect upon such equipment renders necessary the need of an exhauster especially designed for such work. It is here that the open-type exhaust fan is not suitable for the purpose, for with such equipment it becomes necessary to exhaust over the motor and bearings. Consequently, air at high temperature, or laden with dust, smoke, grease, paint spray, acid vapors, steam, gases, etc., continually passes over the motor before reaching the fan wheel, and it is only a matter of a short time before such equipment completely breaks down. It has been very often attempted to locate the "open-type" direct-connected motor-driven fans in sheet metal ducts for exhausting these elements, with the result that the equipment would not stand up under such circumstances and the contractor, because of the embarrassment and expense involved, has shunned this particular class

Application of Ventilation in Kitchen of Restaurant.

of work when the selection of the proper exhauster for the purpose would have set him right.

### Importance of Selecting Proper Equipment for Particular Jobs.

The importance of selecting the proper equipment for such purpose is therefore of no little account. Perhaps the one thing which will no doubt regain the confidence of the contractor in seeking the industrial field with greater fervor as a receptive market for ventilating equipment would be the development of a simple, efficient exhauster, low in first cost and cost of operation that may readily be applied to machines and processes. A step in that direction is the recent innovation in ventilating equipment known as the Wing-Scruplex exhauster, manufactured by the L. J. Wing Mfg. Co. of New York City. This unique apparatus consists of a directly-connected motor-driven propeller fan in a neat housing of such convenient form as to render it easily installed in any system of duct-work. The motor of this unit is located entirely outside of the housing where it cannot be affected by the elements in the air being handled by the exhauster, and where it will keep clean and cool and be easy

App'ication of Ventilation for Removing Heated Air and Fumes During Shaping Process in Hat Factory.

of access. The driving shaft and interior bearing are placed in a tube through which fresh air is continually circulated, as an additional measure of precaution. The lubrication of the bearings on this unit is effected from the outside motor end, making it easy to maintain.

By selecting durable equipment which affords complete protection to the working parts against the elements to be exhausted, the contractor sells a system which will stand up and give constant and uninterrupted service. Such an installation becomes a recommendation and paves the way to a practically untouched field. The comprehensive data furnished by the manufacturers enables the contractor to easily solve any seemingly difficult problem. Their guarantee protects him and relieves him of any worry or expense after the equipment is installed.

Perhaps the greatest fault of the electrical contractor has been that of listening to a customer who, primarily, does not know what sort of equipment is needed, and further, views the installation from a first cost standpoint. He tries to tell the contractor that smaller equipment and duct-work could be installed just as well and save him some money, and the contractor has too often acquiesced rather than lose the order. It is not surprising, therefore, that systems have been put in with inadequate and improper equipment and with piping much too small in area. Since the capacity of a fan is directly proportional to its speed, and the horsepower consumed varies as the cube of the speed, it follows that small ducts (which necessitate high speeds to obtain a certain air delivery) require a great deal more power than if they were made of large area. A system with large piping is more expensive in initial cost, but the saving effected in operating costs after it is installed pays for itself in a short time. This the contractor should point out strongly in protecting the interests of his customer as well as his own good name.

The subject of industrial ventilation is indeed one which should receive special consideration. The necessity for efficient ventilation in plants of all kinds is unlimited, and it requires little or no effort on the part of the contractor to induce its installation. From a sanitary or hygienic standpoint the various departments of health and labor compel the maintenance of proper working conditions for the operatives, and from a production point of view plant owners themselves are desirous of providing fresh air for their workers for increased output. Indeed, fresh air might properly be termed the invisible aid to production, and production managers today are not wont to overlook its far reaching effects. This particular phase of industrial necessity is one of great importance, and offers most wonderful opportunities to the contractor for increasing his profits by the sale of ventilating equipment. He has but to stimulate his efforts in that direction.

**This is the third of a series of ventilating articles which appear once a month in this publication, in the Contractor-Dealer issue. The next article will appear in the Dec. 24 issue.**

Plans are progressing for the annual electrical show to be held at the University of Illinois, Urbana, Ill., in April. C. L. Conrad, president of the Electrical Engineering Society of the University, has been appointed general manager of the show.

The only teacher who is not underpaid is experience.

## WINDOW DISPLAY CONTEST FOR SWEEPER DEALERS.

**Promotion of Annual Holiday Campaign by Prominent Cleaner Concern Serves to Increase Sale of Appliance for Christmas Present.**

Electrical appliance dealers, as well as merchants engaged in other businesses who sell the Hoover suction sweeper, are preparing for an intensified local advertising and selling drive during "Hoover Week," Dec. 8-15. This is an annual institution during which Hoover dealers everywhere engage in friendly rivalry. One of the major events of "Hoover Week" is the nation-wide window display contest. Attractive cash prizes are awarded to those dealers who design the most attractive and effective window exhibits

The intense interest being manifested in the contest by electrical appliance dealers indicates that this year's competition will be the keenest and most successful in the company's history. Not only are dealers everywhere preparing effective window exhibits but, in addition, they are arranging to stage a greatly increased number of home and store demonstrations. The personal demonstrations have proven highly effective and increased sales invariably accrue to dealers in proportion to the number of demonstrations they make.

Coming only two weeks before Christmas, "Hoover Week" always intensifies and sustains the keen selling activities of dealers throughout the holiday season. This is responsible for the fact that annually more Hoover suction sweepers are sold from "Hoover Week" until Christmas than at any other period of like duration during the year. This year, when Christmas gifts are certain to be largely confined to articles of a very practical nature, the desirability of an electric sweeper as a Christmas present becomes more and more apparent, and the strong appeal always made by a sweeper as an ideal present should be even greater this year than ever before.

## ELEVATED AND SURFACE LINES TO HAVE UNION STATION.

The Wilson avenue district of Chicago, called the "Uptown Loop," is to have a union station for its elevated and interurban roads. Plans for the structure, to be erected at the northwest corner of Wilson avenue and Broadway, were outlined recently by Britton I. Budd, president of the roads. "The enormous growth of the Wilson avenue district," he said, "makes a station there vital. Our plans provide for a 1-story structure, with 300 ft. frontage on Broadway and all modern conveniences. It should be ready for use by next spring." The structure will be a joint passenger station for the Northwestern "L" and the Chicago, North Shore & Milwaukee electric lines.

## CONLON WASHER WINS IN PATENT CONTEST CASE.

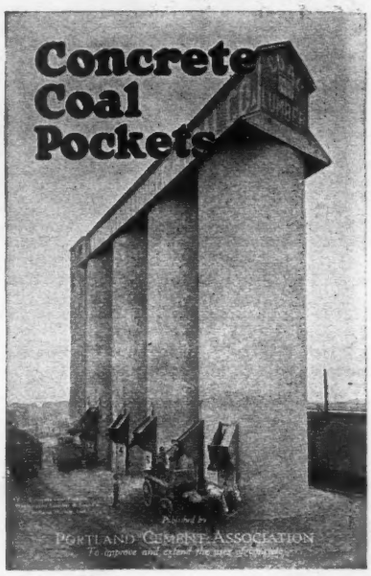
The washing machine industry is interested in the decision in a patent case just handed down by Judge Fitz-Henry, in the U. S. District Court at Springfield, Ill., in which he upheld the validity, and declared an infringement, of a patent owned by the Conlon Electric Washer Co., Inc., of Cicero, Ill., in the latter's suit against one of its competitors. The Conlon product is at present distributed exclusively by the Western Electric Co.

One of the Prize Hoover Windows Arranged Last Year by the Public Service Electric Co., Elizabeth, N. J.

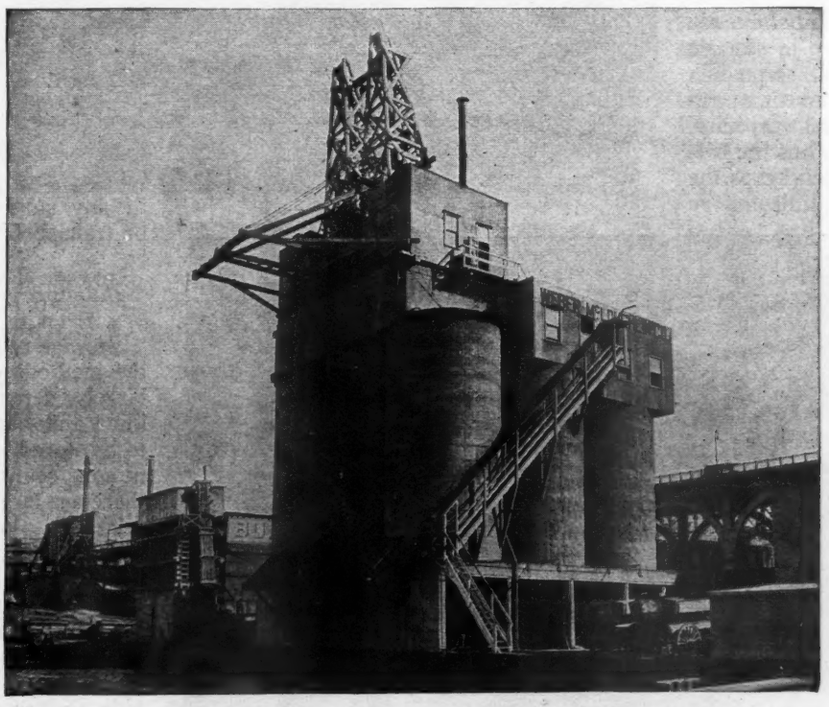
# Economy of Concrete Bins and Pits for Coal Storage

By A. C. IRWIN

*Engineer, Structural Bureau, Portland Cement Association.*




Probably no other industrial situation that existed during the past 2 or 3 yrs. so seriously threatened our economic life as did the irregular or deficient coal supply. Some time during that period practically every manufacturing plant found itself confronted by indefinite suspension of operation. One can hardly imagine that any greater hardships could be imposed upon the country than would come from paralysis of industry due to absence of coal supply. Everyone is constantly dependent on uninterrupted normal manufacture and distribution of food, clothing, heat, power, light and other commodities that are essential to life itself—so availability of coal for continuous operation is all-important—in fact, a necessity. No manufacturing industry would expect to operate successfully without having arranged for sufficient stocks of necessary raw materials entering into its finished product, to prevent danger of their depletion below certain established requirements, thus insuring uninterrupted production. Yet frequently an industry fails to anticipate and safeguard its fuel requirements—and without fuel no stock of raw material can be converted into the desired finished product. Coal storage, which means power insurance, is therefore insurance against shutdowns. Anything that interferes with continuous production means a loss. Not all of this is expressed by loss of profits during the time of an enforced suspension of operation. There must be added overhead and fixed charges, loss in efficiency in production due to disorganization of working forces and delayed delivery on contracts with possible resultant loss of valuable patronage—often secured at considerable expense; that there are other losses none the less real every industrial operating executive knows full well. Every coal user should arrange for some storage. Domestic consumers use in the aggregate but a relatively small percentage of our total coal production, yet they should be prepared to store the greater portion of their annual requirements

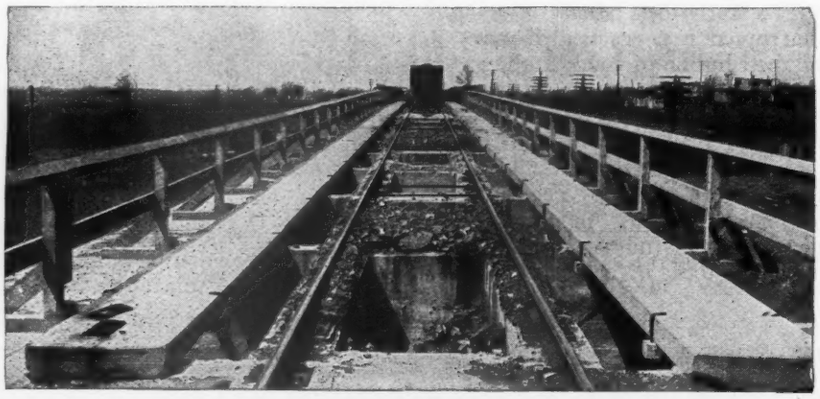


**A Group of Elevated Concrete Coal Storage Bins, Weber-McLoughlin Co., New York City.**

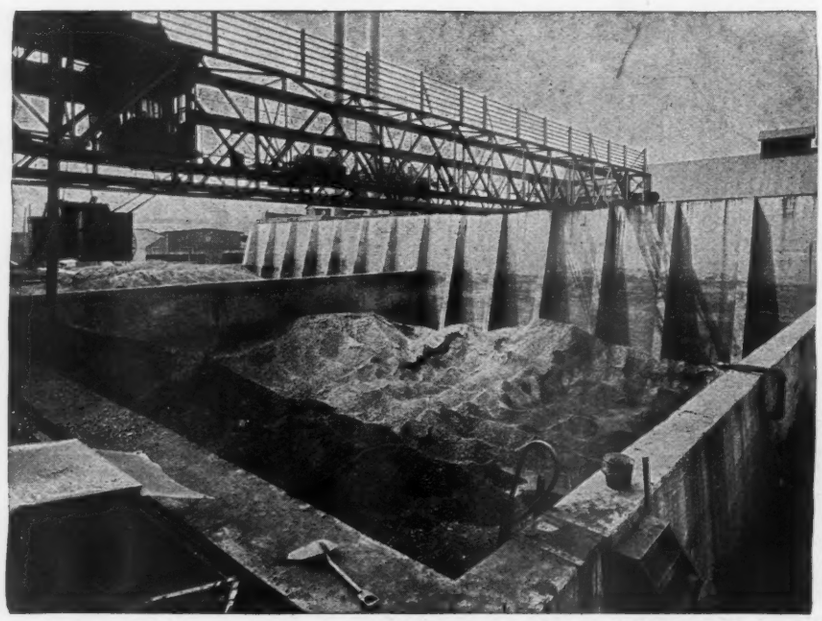
Submerged Coal Storage Pit, Ebner Ice & Cold Storage Co., Vincennes, Ind.

at any time their dealer is prepared to deliver it. Every important industry using any considerable amount of coal should in normal times keep a supply sufficient for at least 30 to 40 days' operation. With such a reserve the industry is independent of deficiencies in supply caused by railroad congestion or mining difficulties. In such cases daily deficiencies in receipts can readily be made up from reserve in storage until increased shipments enable replenishment of reserve to normal capacity. Coal storage is thus the balance wheel which keeps the machinery of production going without interruption.

Storage of coal by industrial plants is also needed for reasons other than insuring continuous operation. Advantage can be taken of the most favorable price inducements that coal operators may be disposed to make contingent on delivery any time during a stated period. Such inducements are usually made because it is known that during certain periods more transportation facilities will be available. With such an understanding between coal producer and coal consumer, the former can plan his operations sufficiently in advance to take advantage of any subsequent surplus of transportation.



Shallow Bins for Wholesale Distribution. Trucks Being Loaded by Gravity.



Concrete Pits for Submerged Coal Storage, Nebraska Power Co., Omaha, Nebr.

### Storage Requirements and Methods.

Storage requirements and the methods of storage are largely determined by the kind and quantity of coal to be stored. In some bituminous coal mining regions there are large quantities of relatively low-grade coal which many industries could utilize profitably. Yet these coals are not used as extensively as they might be simply because industrial plants have failed to provide proper storage facilities for them. Many of these coals contain proper heat value, yet because of chemical content are readily subject to spontaneous combustion when improper-

ly stored in large quantity. In such cases the storage problem is simply one of keeping the fuel submerged in water. Such storage facilities are of simple construction. They involve only watertight, concrete lined pits in which the coal can be kept constantly submerged until required for use. Under such conditions of storage these low-grade coals can neither ignite in storage nor while so stored lose any of their heating value, which might occur in open air storage.

Among the points to be considered in the storage of coal by the individual industry are:

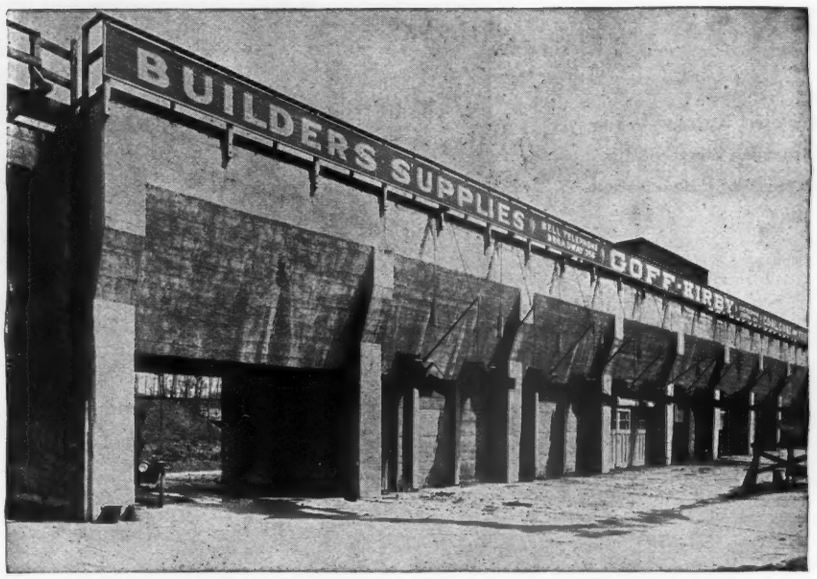
Space available for storage.

Convenience and economy of handling in and out of storage.

Convenience with respect to point of consumption and handling equipment.

Convenience and economy of handling in and out of storage are prime requisites for large industrial plants and for public utilities. Facilities should permit moving as much of the coal as possible, direct from storage to bunker or firing floor.

Elevated bins near the point of use are particularly convenient as coal may be discharged from them by gravity for firing by automatic stokers or by hand. Elevated bins are ideal for storage by retail dealers. If such bins receive coal from track hoppers, the cost of handling will usually be less than from open-ground storage.



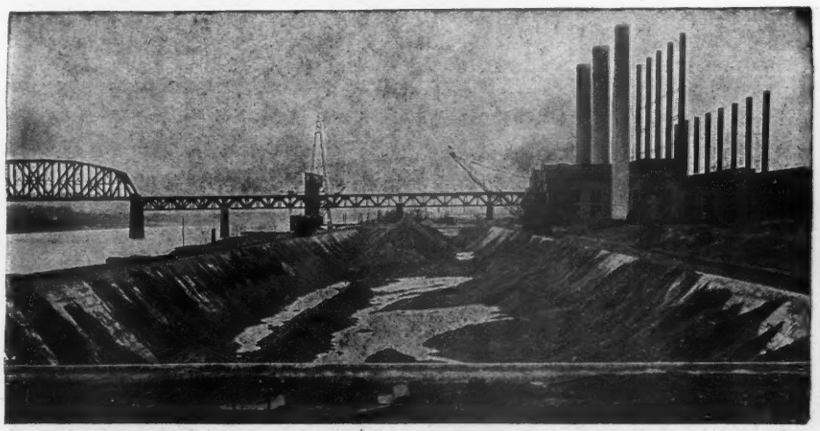

Elevated Concrete Bins of the Goff-Kirby Coal Co., Cleveland, Ohio. Above, Bins for Retail Distribution of Coal by Gravity-loaded Trucks and Wagons.

Concrete Storage Bins in Retail Yard of C. W. Hull Co., Omaha, Nebr.

Large piles in open air storage should have concrete enclosure and dividing walls so as to economize space and localize fire which may start from spontaneous combustion. Accompanying sketches suggest several methods of open air storage.

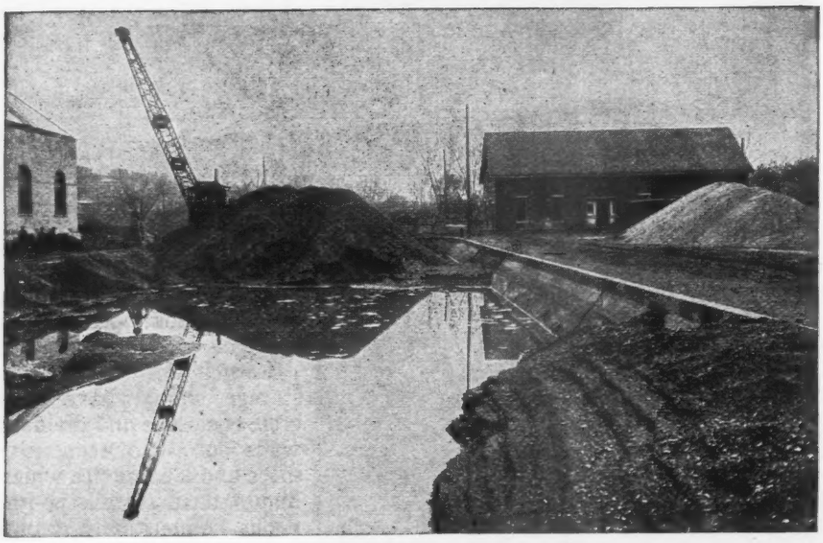
The parallel track type without trestle, employed for storage on a large scale, requires locomotive cranes or conveying equipment for unloading, storing, reclaiming and for transporting from storage to place of use.

The trestle type allows dumping directly from

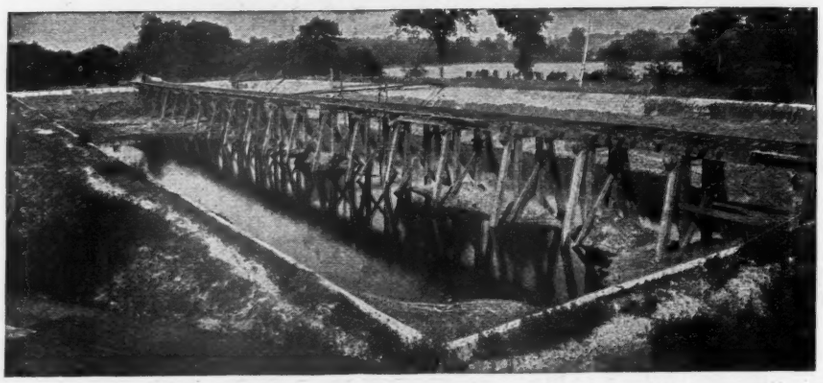


Submerged Coal Storage Pit, Duquesne Light Co., Brunots Island, Pittsburgh, Pa. Capacity 100,000 Tons or a 40 Days' Supply.

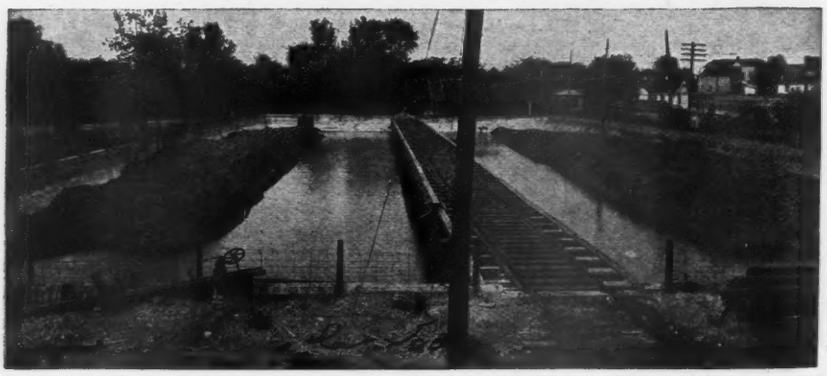
Pits for Under Water Storage, Western Electric Co., Hawthorne, Ill.



Submerged Coal Pit, Metropolitan Water District, Omaha, Nebr., Florence Plant.

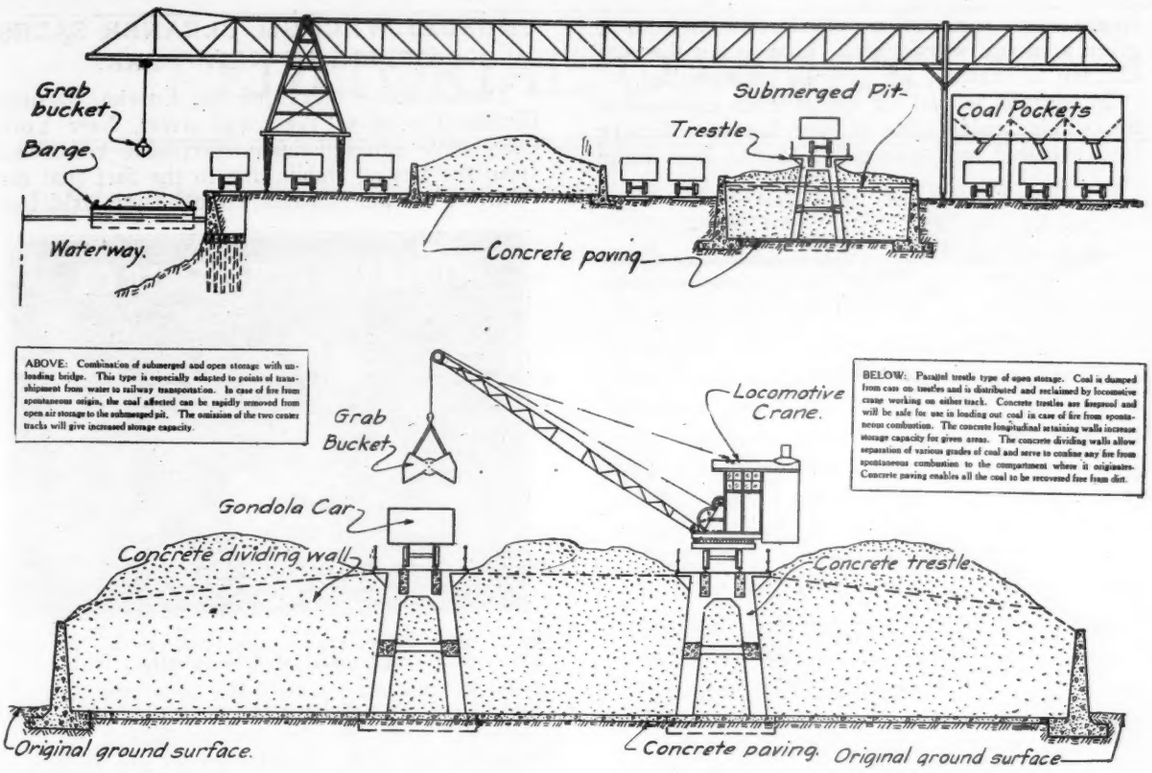


Concrete Under-Water Coal Storage Pits of the Illinois Traction System, Near Mackinaw, Ill.



Another Concrete Pit for Under-Water Storage of Coal, Built by the Illinois Traction System. This One Is Located at Riverton, Ill.

In 1919, 35,000 Tons of Coal Were Stored in These Pits.


Grab bucket
Barge
Waterway.
Submerged Pit
Trestle
Coal Pockets
Concrete paving
ABOVE: Combination of submerged and open storage with unloading bridge. This type is especially adapted to points of transshipment from water to railway transportation. In case of fire from spontaneous origin, the coal affected can be rapidly removed from open air storage to the submerged pit. The omission of the two center tracks will give increased storage capacity.
Grab Bucket
Locomotive Crane.
Gondola Car
Concrete dividing wall
Concrete trestle
BELOW: Parallel trestle type of open storage. Coal is dumped from cars on trestles and is distributed and reclaimed by locomotive crane working on either track. Concrete trestles are fireproof and will be safe for use in loading out coal in case of fire from spontaneous combustion. The concrete longitudinal retaining walls increase storage capacity for given areas. The concrete dividing walls allow separation of various grades of coal and serve to confine any fire from spontaneous combustion to the compartment where it originates. Concrete paving enables all the coal to be recovered free from dirt.
Original ground surface.
Concrete paving.
Original ground surface

trestle, and in conjunction with portable handling and conveying equipment can be used to store coal over a considerable area each side of the trestle.

Circular storage is especially applicable where available ground space is square or nearly circular in shape.

Where coal is received from boats, the moving bridge type unloader, or hoisting tower with flight conveyors, is usually adopted. In such cases open storage may be combined with underwater storage. All grades and mixtures of coal can be stored under water with positive assurance that no loss will be suffered from any cause.

### Effect of Storage on the Properties of Coal.

Sidehill storage may be found most economical where there is considerable slope to the natural ground surface adjacent or convenient to the point of use. A fairly uniform slope covered with concrete paving and having concrete dividing and retaining walls, and equipped with gates and chutes, will provide for loading directly from storage to cars by gravity, or in special cases for chuting directly to boiler house bunkers or bins.

It has been proved that the firing qualities of coal are not affected in any important degree by storage, also that any apparent slowness of combustion resulting from storage is readily overcome by regulation of draft and by modified firing. The coke and gas making qualities of coal are little, if any, affected if the coal does not heat in storage.

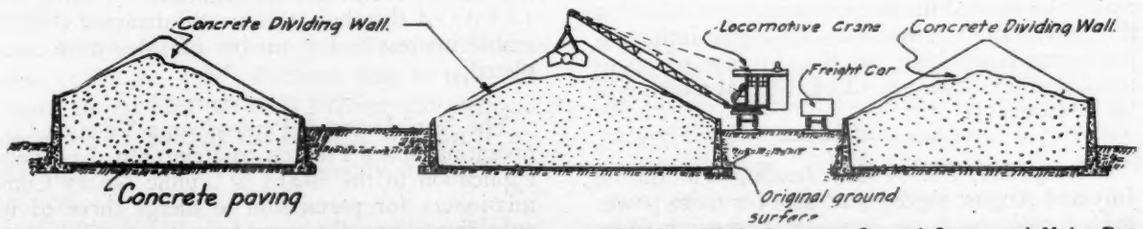
Any considerable breakage of coal as a result of handling is objectionable for some uses and also increases the tendency to spontaneous combustion, but unless breakage goes so far as to increase largely the percentage of "fines," it is of little importance.

The depth of the pile is important only from the standpoint of handling or loading out in case of fire.

### Spontaneous Combustion.

Anthracite coal is rarely subject to spontaneous combustion. In bituminous coal spontaneous combustion is due primarily to the generation of heat through slow oxidization of the carbon, accompanied by conditions of storage which prevent the heat generated from being dissipated rapidly enough to keep the temperature of the coal below the ignition point. As air is necessary to support oxidization, spontaneous combustion will be prevented if air is excluded from the coal. For a discussion of this subject reference is made to Technical Paper 235 of the U. S. Bureau of Mines, which may be obtained for 5 cts. from the Government Printing Office, Washington, D. C.

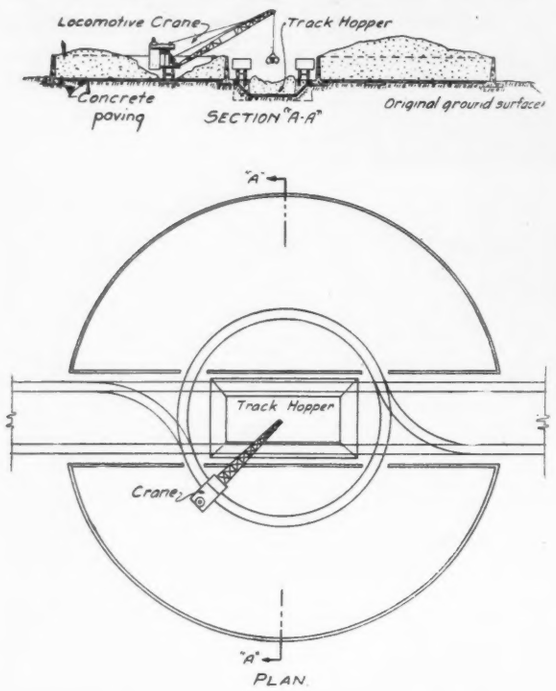
In open air storage, subdividing the piles with concrete walls will assure that fire resulting from




**Parallel Track Type of Open Storage. Concrete Enclosure and Dividing Walls Conserve Ground Space and Make Possible Flooding One or More Compartments in Case of Spontaneous Combustion.**

spontaneous combustion will be confined to a given area and will facilitate loading out the coal affected so that the fire may be extinguished.

In addition to making spontaneous combustion impossible, under-water storage is most effective in preventing any appreciable loss of heat value




Circular type of open storage. Coal is dumped from bottom-dump cars into track hopper and is distributed and reclaimed by locomotive crane working from circular track. Maximum storage for given ground area is obtained by placing exterior circular retaining wall at a distance from circular crane track slightly greater than reach of crane. Concrete paving keeps the coal clean.

**Circular Type of Open Storage. Coal Is Dumped From Bottom-Dump Cars Into Track Hopper and Is Distributed and Reclaimed by Locomotive Crane Working from Circular Track.**

through gradual oxidization. Pits for submerged coal storage should be concrete lined to prevent loss of water and coal.

Grades of coal having different degrees of tendency toward spontaneous combustion should not be piled together in open storage. When placing coal in storage, care should be taken to prevent any considerable separation of lumps and fine material, as an accumulation of fine coal at one spot in storage contributes to the possibility of spontaneous combustion. Mine-run coal, therefore, should be placed in storage in layers and uniformly distributed. These precautions are unnecessary, however, with submerged storage.

Pieces of oily waste, wood and other combustible material should be kept out of large open air piles of stored coal.

Coal stored in tight elevated concrete bins may readily be flooded in case spontaneous combustion threatens. In fact, bins may be divided into compartments when built, so that in case of spontaneous combustion not all of the coal stored will be in danger.

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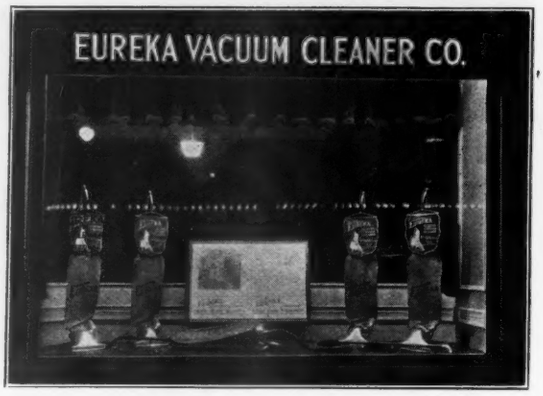
Metropolitan Edison Co., Reading, Pa., during July and August signed contracts for more power than during the 7 mo. previous, according to an official.

## UNUSUAL VACUUM CLEANER SALES OFFICE IN NEW YORK.

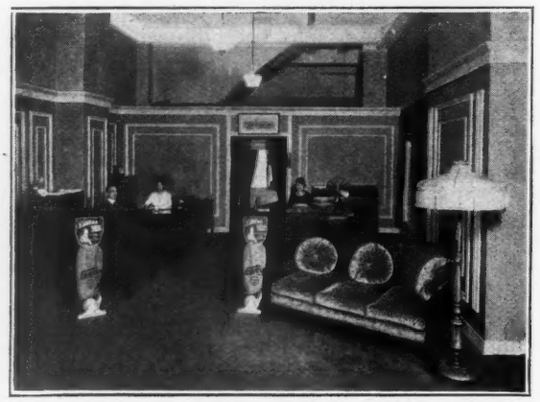
The attractive offices of the Eureka Vacuum Cleaner Co. at 31 West 43d street, New York City, have aroused many favorable comments from the buying public due to the fact that the "Eureka" vacuum cleaner exclusively is exhibited




**Sales Office of Eureka Vacuum Cleaner Co., 31 West 43d Street, New York City.**

and demonstrated there and contrary to the usual electrical store, no electrical appliances or merchandise are sold. Similar stores are located in many of the large cities of the country and at present over 450,000 "Eureka" cleaners are in use throughout the world while the machine has been awarded grand prizes at five international expositions during the past 6 yrs.

At the recent New York Electrical Show this company in addition to demonstrating the features of the "Eureka" cleaner, exhibited a "U-tube," the apparatus operating the suction power



**Show Window in Sales Office of Eureka Vacuum Cleaner Co., New York City.**

of a vacuum cleaner, showing that the "Eureka" developed a greater suction than that required by the U. S. government specifications. During the 10 days of the show this booth attracted considerable interest and a number of sales were completed.

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The New Jersey & Pennsylvania Traction Co., operating from Trenton to Princeton, has made application to the Board of Public Utility Commissioners for permission to merge three of its subsidiary lines, the corporation in the future to be known as the Trenton-Princeton Traction Co.

# EDITORIAL COMMENT

## *Holiday Opportunity*

Today is the day to get ready for Christmas business, unless you have already done so. There is just one short month left, and a month is none too long a period in which to work up and "put over" the business of the season. The following comments, taken from *The Red Band*, give suggestions as to how window displays may be made to help in attracting the attention of prospective customers:

"Display windows are the eyes of your stores. Make them wink; make them smile; make them invite. An attractive window during the holiday season will bring people into your store. This is your first problem—to get them into your store. That is why your windows are the most valuable space you have.

"Once interested people are inside they are half sold. Many folks buy things just because they happen to need, or that interest and attract them. Almost every woman will be interested in an Ohio Tuec display, but to bring in the greatest number of inquiries about it, or requests for a demonstration, there must be a real idea in the window display. It should show how the equipment cleans and explain why a vacuum cleaner is necessary to have a really clean home, with the holiday spirit woven into a display.

"How many times have you walked along the street for several blocks and not a window attracted your attention? Then, suddenly, you stop to inspect a 'trim' that irresistibly claims your attention. What is the answer? Originality. The man who trimmed the window used ideas out of the ordinary, and these ideas got your attention—just one window out of, perhaps, 25 or 50.

"What was the matter with the other windows that you paid no attention to? They were artistic, they were timely, but they lacked that touch of something different that is so essential to business—attention getting methods. People naturally get tired of the sameness of ordinary daily affairs and are prone to pass unnoticed anything that does not vary the monotony to a considerable extent.

"There's an old saying that 'there is nothing new under the sun.' Perhaps that is true, but many an old idea has been twisted and changed, or added to, so that the effect is striking if not startling. It savors of originality and gets attention.

"Seldom has there been such an opportunity as now for appliance dealers to extend their sales. The scarcity of competent help makes it almost compulsory for the mistress to do more or less housework, regardless of her financial status. Then, too, the modern home has very little extra room and everything must be purchased with the idea of taking up as little space as possible. These conditions make desirable the use of electrical appliances because they are labor saving and compact. Added to this is the fact that they make popular holiday gifts, so that every dealer should make his slogan, 'Make This an Electrical Christmas.'"

Following these comments were specific directions as to how to decorate a window, two of these sets of directions being given herewith. The first scheme is as follows:

"Put a Christmas tree, laden with tinsel and ornaments and ablaze with countless little red, yellow, blue and green lamps, in your window. Place the tree so that it is visible from the outside as well as from within. Around the base of the tree put low tables for displaying cooking and heating conveniences, while on the floor place ironers, washers and your Ohio Tuec cleaners, etc. Overhead place an electrical sign, 'Give Her Something Electrical.'"

The second scheme is a little more comprehensive, being as follows:

"Strew little branches of holly on the floor of your window and from the center of the ceiling hang a big spray of mistletoe, from which let narrow red or colored ribbons radiate to all corners of the window. At one side place a Christmas tree covered with tinsel, ornaments and lights and hang with toys and dolls, while on the floor set larger toys, boxes, etc. This display will attract the attention of every child who passes and, naturally, when the youngsters stop the grown-ups having them in charge also will stop. The children are attracted by the toys and ornaments while the grown-ups will see your Ohio Tuec worded: 'Here's a gift that will be appreciated and used every day in the year for many years to come. Come in and let us demonstrate it to you.'"

There are a great variety of arrangements suitable for the Christmas window, and the ones that draw and hold attention are worth whatever they may cost. The window dressing should be arranged to attract attention and also to invite the "window shopper" inside. When the customer is once inside it is up to the dealer to make a sale and a friend, but if only one aim can be attained,

make the friend. A permanent friend is good for many sales and many friends mean good business and permanent prosperity.

## *The Customers' Point of View*

Every year at about this time there are a large number of people who look at their "Electric Light Bill" and wonder "what the central station company is trying to do now." Some give vent to their feelings in thought only, while others give vent to much meaningless talk about how the meter has suddenly renewed its activity in a manner that causes concern to the man who has to pay the bill. There are always many complaints made as a result of the increase in lighting hours during the fall months, and these complaints result in a considerable amount of needless expense in testing meters and in advising customers as to the cause of the higher bills being presented.

A little forethought on the part of some central station organizations has resulted in reducing the number of such complaints to a low figure. In most of these instances it has been found necessary only to send a note with one or two of the early fall bills telling the householder why they should expect bills for larger amounts later on. Such a practice not only relieves the minds of the uninformed customers, but also relieves the company of much criticism and much needless expense. The average man is willing to pay his bills, but does not relish unexpected increases in items of regular monthly expenditure. If he knows in advance that a certain item must have a little larger allowance set aside for the coming month he will take the increase with a much better spirit.

## *Railroads Announce Freight-Rate Reduction*

Executives of the railroads of the United States, at a meeting in New York City Nov. 16, determined to make for a period of 6 mo. an immediate reduction of 10% in carload freight rates on farm products, any reduction in such rates made since Sept. 1, 1920, to be constituted a part of such 10%, this reduction to be put in effect without waiting for a reduction in wages. This reduction is to apply throughout the entire territory of the United States, except on traffic moving wholly within New England.

The railroads have already reduced freight rates substantially from the level established by the Commission in August, 1920. The reductions already made are estimated as accurately as can be to involve a loss of revenue at the rate of $175,000,000 to $200,000,000 annually. These reductions on many roads represent a loss much greater than any corresponding saving realized from reductions in wages already effected. The railroads are, furthermore, awaiting decisions of the Labor Board which it is hoped will relieve the companies from the expense of many onerous and uneconomical working conditions. The railroads are not in a financial position to make this sacrifice. Unless there should be some revival in business, the probability of which is purely conjectural, the entire immediate loss involved in this proposed reduction in rates would be taken from the net earnings of the railroads.

In making this reduction the railroads are relying upon the public for effective aid in bringing about the necessary reduction in labor and other costs of transportation, and are hoping for the co-operation of labor itself to that end. They have taken the first step in relieving existing business depression and have given an earnest of their fixed purpose to reduce rates and to relieve at the earliest practicable moment as far as reasonably possible the transportation burden on the public.

## *Copper and Its Substitutes*

When the *Santa Maria* arrived off the coast of Honduras, Columbus captured a native canoe, and among other things it contained a number of copper hatchets. After reaching a point near Panama, he wrote a report to his sovereign and in mentioning the incident, spoke of these and other excellent examples of the coppersmith's art, adding that he believed the country contained great mines of copper. Almost from that day forward, the mining of copper ores and the fabrication of copper metal have been important factors in the industrial and economic life of our country.

Early American historians all comment on the extensive use of copper by the native Indians and their amazing cunning in making domestic utensils as well as ornaments and implements of war. With such evidences of the use of copper about them and in view of the extensive use of the metal for domestic purposes in Europe, it was quite natural that the early colonists should adapt copper to their domestic needs. Thus we find the art of working copper to be among the first of the major industries to be developed in the Colonies.

In 1645, Joseph Jenks, a native of Hammersmith, near London, came to Massachusetts as principal workman and machinist for John Winthrop, Jr., and he deserves to be held in perpetual remembrance in American history as being the first founder who worked in copper and iron on the Western continent. Three years later Governor Endicott discovered copper deposits and brought smelters and refiners from Sweden and Germany.

With the discovery of large copper deposits in

New Jersey, Pennsylvania and Virginia, and the establishment of rolling mills in Boston, New York and Baltimore, the development of the industry was rapid and in the middle of the last century we find copper or its alloys in general use for cooking utensils, roofing, ornamental ware, and a thousand other uses ranging from the manufacture of pins to the sheathing of ships. The coppersmith was as necessary to community life as the blacksmith. Except for that part of the country's production which was exported, the entire supply was used for purposes which we may broadly term domestic.

With the advent of the great era of electrical development, the demand for copper jumped enormously. The production of the country was totally inadequate, the price rose rapidly and it became increasingly difficult to secure copper at a price which made possible its use for domestic purposes. Great new copper deposits were discovered, new mines were opened up, improved mining and smelting methods were developed, but still production was inadequate to meet demands.

The situation was further complicated by a series of wars and the consequent demand for copper for munition purposes; the development of the automobile industry and the great extension of interurban electric service. This enormous demand for copper resulted in an increase of production of 1,600,000,000 lbs. per annum in 10 yrs. With the coming of the World War, the demand for copper became so great that its use in all but essential industries was expressly prohibited. Manufacturers were forced to cut out copper wherever possible and the use of the metal for domestic purposes was practically discontinued.

During this 10-yr. period when practically the entire copper supply was being absorbed in the development of new industries the old established markets were entirely neglected and hundreds of substitutes were placed on the market, claiming all the virtues of copper, and selling at a considerably lower price. Intensive advertising and intelligent sales promotion work resulted in the successful marketing of these substitutes, notably in the roofing material field.

In 1909 aluminum utensils were practically unknown. An effort had been made to market them some years previous but it had been entirely unsuccessful, so much so that aluminum was commonly known among retail hardware dealers as "lemon metal." The absence of competition in copper stimulated manufacturers of aluminum ware to greater effort and by improving their product and an aggressive campaign of publicity, the use of aluminum kitchen utensils has increased by leaps and bounds until today 50% of the kitchen utensils used in this country are made of aluminum, while less than 6% are of copper.

In 1912 the average amount of copper used in automobiles of American manufacture was approximately 200 lbs. per car. Today the average is less than 30 lbs. per car. In 1914 a large manufacturer of screws, nuts, bolts, etc., in this country consumed 10,000,000 lbs. of brass. Last year they used less than 3,000,000 lbs.

The superiority of brass pipe, especially for hot water supply, is unquestioned, yet today brass represents only a small percentage of the total outlay for plumbing, even in our finest buildings. The plumbing in the Commodore hotel in New York City cost $900,000, of which only $3150 represents brass pipe. The plumbing in the Woolworth building cost $450,000, of which only $32,400 went for brass pipe.

Electrical expansion and a revival of the export trade will probably bring back a normal demand for copper, but that metal must get back into domestic commerce if the industry is to be stabilized and protected against constantly recurring over-production.

## *Efficiency of Vision*

Half the industrial workers of the United States, or 25,000,000 persons, are suffering a loss of efficiency from poor eyesight, according to the report on elimination of waste in industry just issued by the committee headed by Herbert G. Hoover, Secretary of Commerce.

The evil of poor eyesight shows its effect upon production in mistakes and in decreased quantity of production. A limited number of industrial concerns already have instituted eye examinations for their employes and provided for supplying them with glasses. One concern, the report says, estimated that such treatment increased its production efficiency 28%.

Correction of vision of employes "produces an increase in return that will pay for the cost," the report says. The committee recommends government co-operation with employers and labor leaders to inaugurate a national policy of optical examination and treatment.

## *An Awakening*

The day has passed when we can shut our eyes and stop our ears to the claims by the utilities companies, says an editorial in the Washington *Herald*. The fact that they have become the objects of rigid control by the public makes them also, in a sense, public wards. The distrust which in former days attached to them has passed away with all save a few people who still think it popular to insist that public utility companies have no rights and that to speak a word in their defense is to be guilty of an impolite act.

# THE WEEK'S NEWS

***Reports of Important Meetings, Developments and Other Happenings of the Electrical Industry and Its Allied Interests***

## MILWAUKEE PREPARING FOR COMING FIXTURE MARKET.

**Better Lighting Campaign Now Under Way With Elaborate Plans to Educate Public and the Trade in the Advantages of Good Illumination.**

There are 10 committees now hard at work under the able direction of Arthur Polacheck on the plans and preparations for the third annual National Fixture Market to be held in Milwaukee Jan. 30 to Feb. 4, 1922. The 10 committees with the name of the chairman of each, working under Mr. Polacheck as general chairman, are as follows: Better Lighting Campaign, F. A. Coffin; Transportation, H. E. Brauns; Registration, Paul Burrell; Entertainment, Phil Polacheck; Ladies' Committee, Mrs. Arthur Polacheck; Hotel Reservations, Chas. Bridges; Window Display, Peter Sprecher; Finance, Charles Gezelschap, Sr.; Publicity, A. M. Kailing, and Reception, William Polacheck.

At the present time probably the most important and most significant thing about the preparations for the coming Fixture Market is the activity of the committee on the Better Lighting Campaign, which has mapped out its plans for a practically state-wide drive to arouse advance interest and has submitted those plans to the general chairman. The report submitted by the Better Lighting Campaign committee is a typical illustration of the spirit and enthusiasm with which the Milwaukee contingent has gone to work to make the Fixture Market a success. Citing first the need of action and the field that exists, even in and around Milwaukee itself, for advancement and extension of the use of electricity, the committee follows with some detail as to the personnel of that body, which includes representatives of every branch of the lighting and fixture industries and closely allied lines in Milwaukee and the surrounding county.

F. A. Coffin, chairman of this important committee, is the new-business manager of the Milwaukee Electric Railway & Light Co. and is a man well known for his ability and efficiency in carrying through a job once he tackles it. His committee includes A. F. Raatz of the Cutler-Hammer Manufacturing Co., representing the electrical manufacturers; J. A. Sable of the Phoenix Light Co., representing the chandelier manufacturers; M. A. Massino of the J. Massino Manufacturing Co., representing the fixture dealers; Phil Polacheck of Chas. Polacheck & Bro. Co., and Henry C. Hutton, secretary of the Electrical Contractors' and Dealers' Association, representing the electrical contractors and dealers; J. C. Schmidtbauer of Julius Andrae & Sons Co., representing the electrical jobbers; L. F. Gilman, Boston Store, representing the electrical appliance dealers; F. A. Vaughn of Vaughn & Meyer, representing the illuminating engineers; Charles Gezelschap of Grassler & Gezelschap and Arthur Polacheck of Chas. Polacheck & Bro. Co., representing the Chandelier Club of Milwaukee.

### Outline of Principal Purposes of the Better Lighting Campaign.

One of the purposes of the Better Lighting Campaign is to give those engaged in the electrical business a more thorough knowledge of illumination and to show them their opportunities and duties in spreading broadcast the gospel of better and more adequate lighting in homes and in all public and private institutions. It is also desired to tell the public through every effective agency the "story of light" in the home, the office, the store and the factory, and to present the conclusive argument of actual demonstration of this story. Along with education, demonstration and advertising the financial, physical, moral and artistic advantages of better lighting it is intended to show how easily it can be obtained and that it is within the financial reach of practically all who are able to enjoy even the most moderate comforts and conveniences of life.

This campaign already is under way, and it is proposed to continue it to at least March 1, 1922. Following are the specific activities outlined for this campaign:

(1) Educational meetings for electrical men.—Lectures, demonstrations and discussions on lighting and lighting equipment. There will be four, possibly six of these meetings, about a week apart, in the early days of the campaign for the purpose of brightening up the knowledge of electrical men on the subject of illumination.

(2) Schools for electrical salesmen.—Weekly or possibly semi-weekly meetings for electrical salesmen, probably for a 3-mo. period and possibly to extend throughout the campaign, depending upon interest and results achieved.

(3) Home lighting demonstrations.—Advertising and demonstrating the modern electrical home. It is the plan of this activity to combine resources with several well known architects and builders of homes, one in each section of the city, and to assist these builders in properly wiring, fixturing and fitting up homes in such a manner that they can be extensively advertised as model electrical homes; then to carry on extensive newspaper and sign publicity, holding these homes for several weeks for visitation.

(4) Commercial lighting demonstration.—

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Probably a permanent demonstration will be arranged in a suitable room where the meetings of salesmen and other electrical men are held, and where merchants and others can be taken to view the demonstrations and listen to discussions on the subject of lighting. It is planned also to arrange for a system of demonstration installations in stores and display windows and other places of business which demonstrations, it is expected, will remain permanently where installed. This activity will tie up with a survey of all the stores and business houses in the city and a campaign to interest these places in improving their lighting installations.

The above notes cover only about half the separate activities planned for this Better Lighting campaign, the other work including an industrial lighting demonstration, a survey of all stores and business houses in Milwaukee, extensive newspaper publicity, direct by mail publicity, a study of refixturing problems, and the compiling of an electrical directory for Milwaukee.

## ELECTRICAL CREDIT MEN DISCUSS BUSINESS OUTLOOK.

**Addresses on Credits and Reconstruction and Building Situation Feature 26th Annual Convention of Electrical Credit Association.**

The outstanding features on the program prepared for the 26th annual meeting of the Electrical Credit Association, Central Division, held in Chicago, Nov. 17-18, were the discussions led by Geo. A. Hughes, president, Edison Electric Appliance Co., Chicago, on "The Trend of the Times"; "Credits and Reconstruction," by E. W. Shepard, general credit manager, Western Electric Co., New York City; "Tackling the Big Job in 1922," by Stanley A. Dennis, New York City, and "The Business Outlook," by M. W. Scanlon, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

The general discussion revolved around the problem "When and How to Use the Association Forms, and with What Results," the leaders being W. E. Sargent, Cutler-Hammer Manufacturing Co.; Henry Schwab, Monarch Electric & Wire Co.; T. C. Russell, Russell Electric Co.; H. E. Wilkins, Belden Manufacturing Co.; C. E. Vandel, Western Electric Co., Kansas City; A. V. Willett, Western Electric Co., Chicago, and H. H. Pribbanow, Julius Andrae & Sons Co., Milwaukee.

The proposed amendment to Article V to erect a board of 15 directors to take the place of the territorial chairmen was defeated, but the whole subject matter was referred to the executive committee, with power to act.

The annual dinner was featured with addresses by Senator John Dailey on "The Building Situation," and Harry F. Atwood, on "The Constitution Our Safeguard."

The attendance was 224. There were representatives present from 25 cities, of which 61 were represented outside of Chicago, the leaders being Milwaukee, nine; St. Louis, nine; Cleveland, eight, and Detroit, seven. There were 163 from Chicago.

The following officers were elected for the ensuing year: President, B. P. George, Beardslee Chandelier Manufacturing Co., Chicago; vice-president, J. H. Taylor, Benjamin Electric Manufacturing Co., Chicago; secretary-treasurer, Frederic P. Vose, Marquette building, Chicago; assistant secretary-treasurer, Walter S. Vose, Marquette building, Chicago; National Board Member, B. P. George; The Viewpoint Representative, Felix Trautmann, Chicago Fuse Manufacturing Co., Chicago; Executive Committee, 3-yr. term, J. H. Taylor and Elmer Forsell, Illinois Electric Co., Chicago.

## WELL-ROUNDED PROGRAM PLANNED FOR JOBBERS' MEETING.

The annual convention of the Electrical Supply Jobbers' Association, Atlantic Division, to be held in Cleveland, Nov. 29-Dec. 2, promises to be of more than ordinary interest, and a large attendance is anticipated. A well-rounded program is now in course of preparation. Prominent speakers will address the session of Dec. 1, which is to be an open meeting. The other sessions will be full of good things to the electrical supply people who are urged to attend and take part in the discussions of the important subjects which will be presented during the convention.

## MR. INSULL TO ADDRESS PRINCETON ENGINEERING FACULTY.

**Past-Presidents of N. E. L. A. to Speak on Public Utility Engineering and Management in Line With Co-operative Program.**

Samuel Insull, president of the Commonwealth Edison Co., Chicago, and past-president of the National Electric Light Association, has accepted the invitation of Princeton University to address the engineering faculty and undergraduates at a meeting which will be held at Princeton, N. J., Dec. 1. Mr. Insull has the distinction of being the first Cyrus Fogg Brackett lecturer under the recently created Cyrus Fogg Brackett lectureship in applied engineering technology that has been established by the Princeton Engineering Association of New York City. Mr. Insull has taken for his topic "The Production and Distribution of Electric Energy in the Central Portion of the Mississippi Valley."

Preceding the meeting Mr. Insull will be the guest at a dinner at the Princeton Charter Club, given in his honor by Charles Penrose, assistant general manager of Day & Zimmerman, Inc., member of the Committee on Electrical Apparatus of the National Electric Light Association, and member of the executive committee of the Princeton Engineering Association. At this dinner, to meet Mr. Insull, will be present Dr. John Grier Hibben, president of Princeton University, and several deans of the university, the dean of the graduate schools, Dr. Andrew F. West, the heads of the engineering departments,

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members of the board of trustees, and Wm. C. L. Eglin, past-president of the National Electric Light Association, and honorary member of the Princeton Engineering Association.

The Cyrus Fogg Brackett lectureship has been established in connection with the expanded engineering schools at Princeton which are being brought about through the Frick Bequest and the large Princeton Endowment Fund. It will be remembered that Dr. Arthur M. Greene, Jr., of Rensselaer Polytechnic Institute, and the chairman of the research committee of the American Society of Mechanical Engineers, has recently accepted the post of dean of engineering at Princeton University and takes office in September, 1922.

Mr. Insull's address is the forerunner of addresses on public utility engineering and management which will be delivered by Charles L. Edgar, president of the Edison Electric Illuminating Co. of Boston; John W. Lieb, vice-president of the New York Edison Co.; Joseph B. McCall, president of the Philadelphia Electric Co.; Wm. C L. Eglin, chief engineer of the Philadelphia Electric Co., and Herbert A. Wagner, president of the Consolidated Gas, Electric Light & Power Co., all of them past-presidents of the National Electric Light Association.

The closest co-operation of the National Electric Light Association has been bespoken to Princeton by M. H. Aylesworth, executive manager, and it will be recalled that Dean West of the Princeton Graduate Schools has served on the National Electric Light Association Committee on Relations with Educational Institutions under the chairmanship of John F. Gilchrist of Chicago.

## ELECTRIC WELDING DISCUSSED BY ELECTRICAL SECTIONS.

**Review Work of American Welding Association at Joint Session of A. I. E. E., N. E. L. A. and Contractor-Dealers at Portland, Ore.**

The Portland (Ore.) sections of the American Institute of Electrical Engineers, National Electric Light Association, and Oregon Association of Electrical Contractors and Dealers met in regular joint session Nov. 15 at the University Club. About 100 members of the three organizations were in attendance, and the feature of the evening was the presentation and explanation of motion pictures of equipment and processes of making "Armco" iron and welding rods by Chas. A. McCune, sales engineer for the Page Steel & Wire Co., New York City. Pictures of iron blast furnaces in operation and the production of pig iron were given. In all these interesting features of mechanical handling were shown. Then followed motion pictures of the operation of open-hearth steel furnaces and the handling of steel billets by high-power magnets. The series closed with moving pictures of rolling-mill operations, showing the shaping of steel into various products. The most of the moving scenes presented were those at the plant of the American Rolling Mill Co., Middletown, O.

Mr. McCune specially stressed the production of iron and steel of a quality required for effective electric welding. In this connection the analyses of material were given.

A series of slides showing numerous electric welds was presented by G. M. Barker of the General Electric Co. Mr. McCune, by invitation of the chairman, reviewed the origin and work of the American Welding Association. Its purpose, he said, is to preserve and continue the results of research work that developed during the war. Every engineering society has representation in the American Welding Society. Another purpose is to develop standard practices of welding and testing materials. The National Research Council, the speaker stated, has interested itself in the work of this society. Inquiries and remarks were made by John S. Beall, president of the Coast Culvert & Flume Co.; D. W. Proebstel, Portland Railway, Light & Power Co., and O. L. LeFever, Northwestern Electric Co. The session was presided over by J. D. Scott, president of the N. E. L. A. section.

## DISCUSS ELECTRIC MARINE POWER AT ENGINEERS' MEETING.

**Problems Relative to Auxiliaries and Electric Propulsion of Ships Taken Up in Joint Session in New York City.**

The 372nd meeting of the American Institute of Electrical Engineers held on Thursday, Nov. 17, at the Engineering Societies building, New York City, was a joint session with the Society of Naval Architects and Marine Engineers for consideration of the subject of "Electric Auxiliaries and Electric Propulsion of Ships." E. D. Dickinson, General Electric Co., speaking on "Electric Auxiliaries on Merchant Ships" subdivided auxiliary machinery on ships into two broad types—for deck use and for below-deck use. In discussing deck machinery he compared winches developed abroad and in this country, and enumerated the general specifications for this class of apparatus. Control methods and generating units were considered as below deck machinery. Mr. Dickinson stated that direct current was being generally adopted for auxiliary power on merchant ships and briefly commented on wiring and installation methods. The paper concluded with a comparative presentation of the various items such as fuel, port charges, upkeep and repairs of deck and engine departments, supplies for engine, deck and steward departments, insurance and loss and damage, entering into the cost of operating merchant ships.

W. E. Thau, Westinghouse Electric & Manufacturing Co., in his paper on "Electric Propulsion" presented merchant ship propulsion equipment from the standpoint of general requirements, reliability, economy, weight, space, cost, operation and performance characteristics, and described in detail the turbine-electric—both the

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synchronous form and the induction type with power-factor correction—and the Diesel-electric type. In conclusion he summarized the features of all types of electric propulsion equipment for merchant ships as being as reliable as any drive, with maintenance and repair expenses no greater. He said that such equipments were ideal for ship propulsion since they have longer life than engines or geared turbine drives and do not decrease in efficiency with age. Furthermore, Mr. Thau termed the Diesel-electric drive as reliable as any economical drive generally. He said that it weighs less than any other and is as economical as the best, while in most cases it costs less, provides more reserve power in case of casualty to prime movers, and affords the simplest and most flexible control.

Prof. Albert N. Goldsmith, director, research department, Radio Corporation of America, in a comprehensive lecture on "World Communication" gave a general summary of the methods now in vogue and to be expected, and set forth a general perspective of the problems involved and their relations. Dr. Goldsmith predicted that in the future wire communication will be supplemented by radio communication, the wire system being used for local distribution and long distances except where large bodies of water, the mobile nature of the receiving station, natural barriers, or other special conditions obtain when the radio system would be used and for broadcasting services also. In conclusion, he foresaw world communication having many important commercial, political, scientific and personal effects.

## MANY CONTRACTS FOR ELECTRICAL INSTALLATIONS.

The Philadelphia Electric Co., Philadelphia, is making a record number of contracts for electrical installations in local new and old residences, and totals for September and October exceed considerably the figures for the corresponding months of last year. During the month of September, 1921, more than 1200 contracts were signed for work of this character, while the month of October is close to 5% in excess of this amount. The outlook for continued activity and increase in this line is said to be excellent.

## ST. LAWRENCE-GREAT LAKES CANAL TERMED A NATIONAL BOON.

The second joint meeting of the four national engineering societies—American Institute of Electrical Engineers, American Society of Mechanical Engineers, American Institute of Mining Engineers and the American Society of Civil Engineers—held in the forum of the Engineering Societies building, New York City, Monday evening, Nov. 14, was devoted to the discussion of the proposed St. Lawrence-Great Lakes canal.

The principal speaker was Gov. Henry J. Allen of Kansas, who voiced the sentiment of 18 middle western states when he spoke favorably for the project in refutation of the arguments of Gov. Nathan R. Miller of New York opposing it. Governor Allen cited figures showing the financial return that would accrue to the country and outlined a plan whereby Canada and the United States could readily raise the $250,000,000 needed. He contended that not only was the canal practical but that it would be a benefit to the country through reducing freight carrying charges and saving time in the transportation of commodities from the central section of the country to the seaboard.

Ex-Gov. W. L. Harding covered the subject in a general manner and H. I. Harriman, president, New England Power Co., presented the advantages his section of the country would gain through the canalization. The effect of the project on the national efficiency and its economic features were discussed by Dr. R. S. MacElwee, Georgetown University.

## TO DISCUSS MODULATION METHODS AT RADIO MEETING.

The Radio Club of America will hold a meeting Monday evening, Nov. 28, in Columbia University, New York City. L. C. F. Horle, consulting engineer, New York City, will read a paper on modulation methods, with particular attention to their application in amateur radio telephony. The subject will be developed from the standpoint of the experimenter and there will be a discussion by the membership of the various methods used in their stations.

## ELECTRICAL SUPPLY BUSINESS IN NEW YORK IMPROVES.

The trend of business in the electrical supply line in New York continues satisfactory, and leading jobbers and dealers report a gradual and firm improvement from week to week. The predominating feature of the local market is the demand for house-wiring installations, brought about by the big activity in new construction operations of this character in all parts of the city. Prices of certain commodities are inclining upwards, and in this respect flexible armored conductors have advanced $2 per 1000 ft. for 2-wire, single-strip material, under a constant growing demand. On the other hand, such commodities as iron conduit and outlet boxes have declined in quotations, the former showing a reduction of about 5% in manufacturers' prices, and the last noted specialty on an everage of about 10%.

## GENERAL ELECTRIC CO. ENGINEER HEADS M. I. T.

According to advices from Cambridge, Mass., Dr. Ernest Fox Nichols has resigned the presidency of the Massachusetts Institute of Technology and his resignation has been accepted by the executive committee of the corporation. His decision resulted from the advice of his physicians that the illness which followed immediately upon his inauguration on June 8 last had resulted in "certain physical limitations, some of

**Milwaukee is planning a great week of activity for the entire Lighting Industry — The dates are from January 30 to February 4, 1922 — ARE YOU GOING?**

them probably permanent," which would make it unwise for him to assume the responsibility of the position.

Dr. Elihu Thomson of Swampscott, Mass., consulting engineer of the General Electric Co., who served as acting president after the death of President Richard C. MacLaurin in January, 1920, has again been appointed to that position. The educational affairs of the institute will continue to be directed by a faculty administrative committee.

## HOME BEAUTIFUL EXPOSITION TO BE HELD IN BOSTON.

What electrical appliances will do in the home, in the way of making easier the work of the woman who has to attend to the household duties, will be shown at the second annual Home Beautiful Exposition, to be held in Boston April 15-29, in Mechanics building. Every device accepted by science as applicable to domestic use will be shown and demonstrated in the various displays, and from the number of reservations for space already made every big company in the country will be represented. All the 1921 exhibitors made their reservations at the time of that exposition, and at the present time many other companies have asked for space, so that probably 20 to 30% more manufacturers will be represented. The average daily attendance in 1921 was 25,000 persons, making an exceptional audience for the manufacturers.

Men who are planning a new home, and women who have in mind interior changes for the sake of efficiency, will find at this exposition every worthwhile appliance, either in the demonstrations or in the fittings of the 6-room house which will be a feature of the exposition. That this, the second exposition of its kind in the United States, will surpass the first is indicated by the list of special attractions added to the regular displays. A series of contests, which will include the art poster announcing the exposition, is being arranged, and the awards in first and second prizes will total $1000. As these contests will touch upon many phases of home life, additional interest is sure to be aroused in the Boston Home Beautiful Exposition.

For exposition purposes Mechanics building is one of the finest structures in the country, having one main hall and four other large halls, giving a total floor space of 125,000 sq. ft. The size may be judged from the fact that it is possible to erect a complete house in one hall and not inconvenience the other exhibitors. All halls will be tastefully decorated, in keeping with the nature of the exposition, and with the numerous displays will present a beautiful appearance. While the exposition would seem to be a specialized affair, it has an instructive and educational value of great importance. In no other way could people become at once acquainted with all the various home appliances. In fact, everything in the displays will make for greater efficiency and beauty inside and outside the home.

Chester I. Campbell, who has for many years managed all the large expositions in Boston, is at the head of the Home Beautiful Exposition, and everything is being done under his personal direction.

## WINDOW TRIMMING CONTEST FOR VENTILATOR DEALERS.

During the week of Dec. 3-10 approximately 1000 electrical dealers throughout the country will participate in a ventilator window trimming contest, an appropriate award to be made for the best display. Those dealers who enter the contest will naturally stimulate extra sales through their unusual window display and will, therefore, benefit even if they do not win the contest. The following rules have been announced by G. C. Breidert, manager of sales promotion for the Ilg Electric Ventilating Co., Chicago:

(1) The display stand must be in the dealer's window between Dec. 3 and 10.

(2) The display must be 100% Ilg Kitchen Ventilator, although the dealer may show a complete kitchen outfit. Signs and appeals should, however, refer only to the kitchen ventilator.

(3) To be eligible to this contest the dealer must send in a photograph (with an extra print) of the display. If he is not successful in winning the award the Ilg Electric Ventilating Co. will allow the cost of the photographs, including the taking of the picture. The photograph must, however, be on the standard 8 by 10-in. plates, and the cost must not exceed $4.

(4) Photographs and full description should be in possession of the Ilg Electric Ventilating Co. not later than Dec. 17 so that they may be judged promptly.

(5) The judges of this contest will be representatives of ELECTRICAL REVIEW, *Electrical Merchandising and Jobbers Salesman.*

(6) A complete story of the sales made and of the interest of the public in the display will be appreciated by the Ilg Electric Ventilating Co.

## COMING CONVENTIONS.

Electrical Supply Jobbers' Association, Atlantic Division, Cleveland, Nov. 30-Dec. 2. Headquarters, Hotel Cleveland. Secretary, E. Donald Tolles, 52 Broadway, New York City.

American Institute of Chemical Engineers. Fourteenth annual meeting, Baltimore, Dec. 6-9. Secretary, John C. Olsen, Polytechnic Institute, Brooklyn, N. Y.

American Building Exposition, new Cleveland Auditorium, Cleveland, Jan. 4-14. Assistant manager, R. G. Collier, 1305 Schofield building, Cleveland.

Western Association of Electrical Inspectors. Annual convention, Chicago, Jan. 17-19. Headquarters, Hotel Sherman. Secretary, William S. Boyd, 175 West Jackson boulevard, Chicago.

Lighting Fixture Dealers' Society of America. Annual convention, Milwaukee, Jan. 30-Feb. 2. Secretary, J. L. Wolf, Builders' Exchange, Cleveland.

National Council of Lighting Fixture Manufacturers Annual convention and Lighting Fixture Market, Auditorium, Milwaukee, Jan. 30-Feb. 4. Secretary, Charles H. Hofrichter, 231 Gordon Square building, Cleveland

**Milwaukee is planning a great week of activity for the entire Lighting Industry — The dates are from January 30 to February 4, 1922 — ARE YOU GOING?**

# FARM ELECTRIC LIGHT and POWER

***Equipment Adapted to Special Requirements of Rural Service, and Practices Employed in Supplying Required Energy or Apparatus***

## FARM PLANT SALESMAN WINNER IN COLLIER'S CONTEST.

**First Prize Is Awarded by "The National Weekly" for Sales Letter From Man Who Surmounts Difficulties to Light Wilderness.**

Because E. Chantry, of Chicago, writes as he sells—straight from the shoulder, plain, convincing, without any frills or exaggeration—he has been awarded first prize by *Collier's* for the relation of his experience in selling electric farm light plants in northern Wisconsin. Some time ago *Collier's* offered a number of cash prizes for the best report of actual sales made this year. This was done because, as the editor of that publication says, good salesmanship promotes the flow of money and goods, and so increases the prosperity of us all. "Examples from real life of sales made under hard conditions," says *Collier's,* "are useful not only to the man who sells goods, but to all the rest of us; they tell a marvelous story of courage and resourcefulness." Through the kindness of *Collier's,* ELECTRICAL REVIEW is permitted to reprint the prize letter.

E. Chantry, winner of the first prize, is a salesman of farm and home lighting plants manufactured by the Matthews Engineering Co., Sandusky, O., and distributed in Mr. Chantry's territory by the Murphy Supply Co., Green Bay, Wis. "He is the most persistent cuss in our organization," wrote Mr. Chantry's employers to *Collier's.* Following is the winning sales letter:

CHANTRY'S PRIZE WINNING LETTER ON SALE OF FARM LIGHT PLANTS.

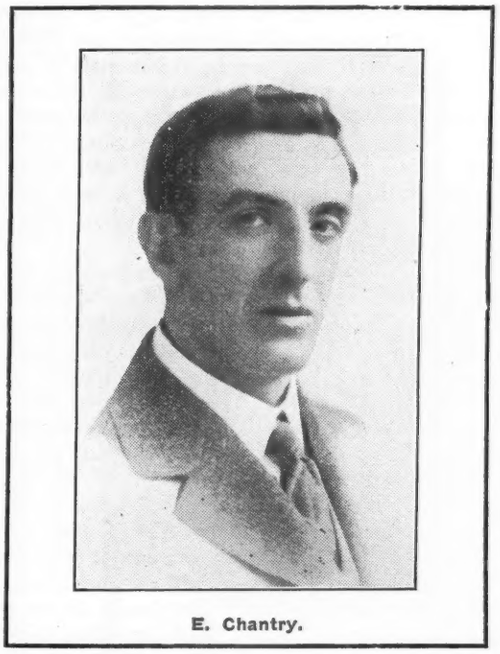
Chicago, Sept. 21, 1921.

"To the Editor of *Collier's:*

"Some time last February I read an article about an automobile dealer who was selling a car a week at a time when all the rest of the dealers in the country who were selling that make of car were doing nothing. The factory managers were so interested in this record that they sent for this dealer and requested him to explain how he did it. The dealer explained, and added that up to that time he did not know he was the only one of their dealers doing any business. To close the matter, the factory gave this man the position of sales manager at a large salary.

"At the time, I was laid off on account of the so-called slump in business, and this article set me to thinking. I went to a wholesale house I knew and persuaded the manager to give me a tryout selling electric light plants to farmers. I knew this firm had a large stock on hand and I also knew that they had written off a loss on that department of $10,000 for the year of 1920, and had discharged their salesmen who were selling lighting plants.

"I realized that I was up against a tough proposition. The plant I was to sell retailed at $745—over $150 more than any other plant of its size sold in the United States—and it was the worst time of the year, early spring, to sell this kind of an article. Further than this, the farmers in the northern half of Wisconsin, where I was to make my sales, were unable to sell their potatoes—the price quoted on the market then would not pay the freight—and also it hardly paid them to take their milk to the cheese factory.



E. Chantry.

So when I say that the northern half of Wisconsin is a potato and dairy district you will realize I was sure up against it.

"No appropriation was to be allowed me for advertising. I was to be given no assistance at all. I was to go out with an automobile demonstrating truck and make the sales entirely on my own ability. Well, I started out. It was zero weather. I drove 60 mi., making my first stop at Ellis Junction, Wis. I arrived about 6 p. m. at a hotel where farmers and lumbermen gathered after supper. It should not be necessary for me to say that I was not wearing a white collar or a 'boiled' shirt. I had about a 3 days' growth of beard and wore an old Mackinaw shirt. To all purposes I looked like any of the others in the party there. I stood around the bar after supper, listening to the conversation, which was mostly about hauling logs over the ice on Noque Bay Lake, about 4 mi. away. I was not saying much, being a stranger there. But I got thinking that if heavy logs could be hauled over the ice, the ice would hold an automobile truck. I inquired the way to this lake and later drove out there. The

ice was 18 ins. thick. I drove out on the ice into the middle of the lake and started up my electric light plant.

"Believe me, I caused some sensation! An electric light plant in full operation at 8 o'clock at night in the middle of a lake about 4 mi. long and 2 mi. wide in the woods of Wisconsin is quite an unusual sight. As there were about a dozen farmers living close to the lake shore, I got some real advertising.

"The next day I followed up the automobile dealer's idea—which was to make 10 calls a day. I rose early and made up my mind to do my very best—work hard and late if necessary. Well, that day I almost made a sale. I would have closed only the banker to whom my prospect applied for a loan turned my prospect down with the remark that if he would wait another year he would be able to buy much cheaper, perhaps at half the price. I sure thought that banker was some business booster, and right then in my own mind I determined to sell that banker an electric light plant. Well, that day I did not make a sale. Right early next morning, however, I got after my prospect and persuaded him to go to another bank. He was able to borrow the money there, and I closed the sale, which had been accomplished in 3 days, including the day it took me to drive up there from Green Bay, Wis. But to get on to my most difficult sale.

"On the fourth day I determined to go after the banker in the State Bank of Criyitz and sell him an electric light plant. Fortune favored me for I met the banker in the hotel. I knew that kerosene was used for lighting the bank. The town of Crivitz did not possess a town electric plant; the town was both too small and too poor. I pointed out to the banker that if he had an electric light burning all night in front of his vault it would be difficult for anyone to attempt to blow off the vault door without being seen, and if the light was put in such a position that it would be visible at night to anyone outside the bank, it would cause suspicion if it happened to be put out by anyone. I further explained that a light was left in most city banks as a protection against burglars. Anyway, I got the banker to admit that it was a good idea; a little more talking on the subject and I closed the sale. I had got the banker to give me an order, when the day before he had backed out of loaning the money to my prospect. I consider this my banner sale—although I sold another bank a few miles away on the same lines a few days later.

"Up to the time of writing this letter I have sold one electric light plant each week, dating from the 1st of March. My total sales up to Aug. 31, including electric light plants and supplies, amount to over $20,000. I have worked hard, got up early and followed out the general lines of the automobile agent as stated in that article I read last February.

"If a salesman today will study the article he sells in detail, be careful how he approaches and talks to his prospect, work hard and rise early, he can sell. He may not yet make as much as in the years of 1918, 1919, and 1920—but he will find that he can sell.

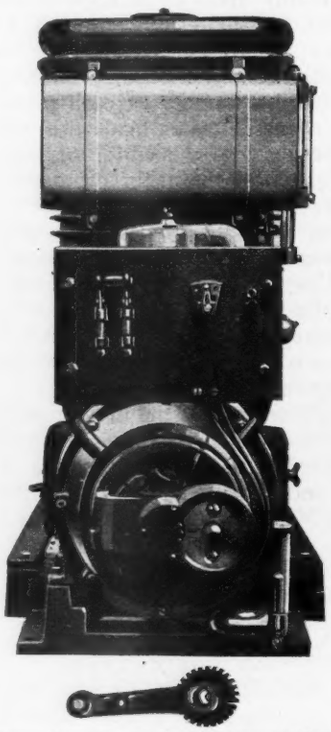
"Yours truly,
"E. CHANTRY."

## LIGHTING PLANTS MOUNTED INSIDE OF FORD SEDAN.

**Demonstration Outfits Assembled to Provide for Easy and Efficient Transportation of Equipment About the Country.**

C. E. Becker, of the Stearns Motor Manufacturing Co., Ludington, Mich., is undertaking the task of demonstrating to dealers the methods of selling lighting plants to the farmers. From experience he knows that the farmer wants and will buy such equipment, and will make good use of it when once installed. But the farmer wants to be shown and also wants to be "sold" on the individual plant before he will buy.

The plan worked out for showing the equipment to the farmer includes a demonstration in the farmer's own yard, using a plant just like the



Small Plant for Use in Connection With Storage Battery.

one to be purchased by the farmer for his own use. To facilitate these demonstrations a number of Ford sedans have been secured and fitted up. The rear seat has been removed to make room for the installation of the plant in the back of the car so that it can be moved from farm to farm and shown in all kinds of weather with a fair degree of comfort. The idea is to make it possible for the dealer to work every day in the year. The average farmer will be more impressed with an equipment that will run in bad weather than with one that is shown only on days when the weather is pleasant and the sun shining.

The plan worked out by Mr. Becker goes farther than just selling the plant. He has drawings to show how to make a satisfactory installation at a very moderate cost, and he has many other details worked out to make the entire transaction a complete success. He believes that each sale made in a community will make another, provided the first installation is satisfactory.

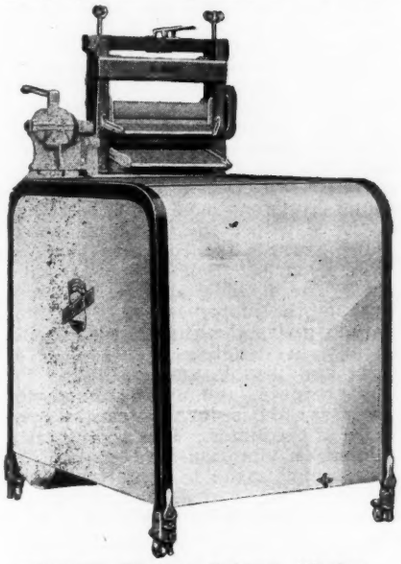
# APPLIANCES and DEVELOPMENTS

***New, Improved or Interesting Electrical and Mechanical Apparatus and Devices, and Applications of Equipment and Methods in Practice***

## New Type Electric Washer With Distinctive Feature.

The United Engine Co. of Lansing, Mich., has recently placed on the market a new electric washer of the cabinet type, but which, it is stated, is distinctive in that the tub travels in a continuous "figure 8." This is accomplished very simply, as two pendulums support the tub, and a crank attached by an arm to one end of the tub tilts up and down as it swings, giving it a continuous motion free of jerk and jar. Gravity is relied upon to assist in the motion of the tub and due to the use of pendulums no springs are required.

The washing process is accomplished solely by violent agitation of the water



"United" Electric Cabinet Washer.

as it cascades with tremendous force through the clothes, 92 times a minute. The tub is not fastened in any way, as it rests in a cradle. It can be instantly lifted out. Its measurements are, length 26 ins., width 17.5 ins., and depth 14.5 ins., accommodating six to eight sheets, or the equivalent. There are no bearings in the tub to give off metallic particles or grease. The tub is made of heavy copper sheets, heavily tinned on the inside, or galvanized "Armco" iron sheets. The inside is perfectly smooth as the clothes are not tossed about and corrugations are superfluous.

A General Electric 0.25 hp. motor, 50% oversize, is the regular equipment. It is of waterproof construction. The four-position reversible wringer is equipped with 12-in. rolls, guaranteed for 3 yrs., ball bearings, safety release and double reversible drain board. All movable parts are inclosed. The pedal and wringer controls are heavily nickel-plated; the cabinet is handsomely finished with white enamel, trimmed with dark blue. There is a dash of color in the trade mark and altogether it is very striking in appearance. Small pedals have been provided for raising the weight of the machine on the casters so that it is perfectly stable even on a polished floor.

## Electric Vacuum Cleaner Used 9 Yrs. in One Family.

Instances of the excellent service rendered by the vacuum cleaner in the home are numerous, and the various manufacturers of these electrical appliances receive practically every day letters of commendation respecting the usefulness and good points of their product. A case in point is that of the Electric Vacuum Cleaner Co., Cleveland, which recently received the following letter from F. M. Hibben, president and general manager, Cleveland Armature Works, Inc., 4732 St. Clair avenue, Cleveland, regarding a "Premier" cleaner which had been in service for a considerable period:

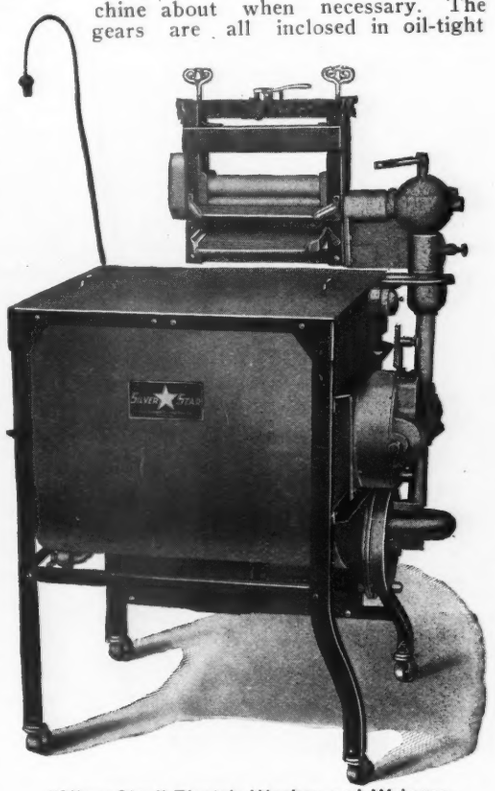
"You might be interested in one of your 'Premier' cleaners which has been in continuous use in my family for something over 9 yrs., having been purchased by Mrs. Hibben in 1911, when you first put them on the market. This has never been repaired and has all the original parts, including cord and bag. The only attention it has had has been an occasional oiling. It was the first cleaner in our neighborhood and I believe was borrowed on an average of seven times a week for the first 5 or 6 yrs. of its life. My boys also used it frequently as a blower in amateur pottery kilns and forges and it has been run on a hot air register on numerous occasions to dry clothes. This was brought to my attention recently in checking the average life of electrical appliances from the standpoint of a repair firm. My conclusion is that if all stood up in service like the 'Premier' we electrical repair houses would have light picking."

## Features of the "Silver Star" Electric Washer.

The manufacturer of the "Silver Star" washing machine states that "There are no practical features in any washing machines that are not to be found in the "Silver Star." From a careful checking up of this statement, the claim would seem to be well taken.

The design of the machine is of the revolving cylinder type. This cylinder is made of hard maple, and is fitted with extra wide ribs or "lifters" for turning the clothes while in operation. The cylinder makes four revolutions and then reverses. This allows the hot suds to penetrate every fiber of the clothes. The capacity of the cylinder when half full, which is the proper load for good results, is six sheets or about 12 shirts or their equivalent.

The outside casing or tub is made of heavy galvanized iron attractively enameled, or from polished copper, tinned inside, as may be preferred by the purchaser. The frame is made of angle iron, mounted upon substantial roller-bearing casters. This enables the housewife to easily move the machine about when necessary. The gears are all inclosed in oil-tight



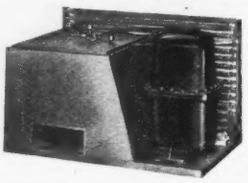

"Silver Star" Electric Washer and Wringer.

housings and are driven direct by shaft from motor. Between motor and driving mechanism there is an automatic releasing clutch which, prevents the blowing out of fuses and injury to motor. The gears are all packed in hard grease and require no lubrication for years. The only necessary oiling is on the motor and wringer.

The wringer is operated electrically by simply throwing a lever to right or left according to movement of the rolls desired. By tripping a simple catch the wringer may be swung to any desired position and is so strongly braced that it cannot sag. The washer is equipped with either d-c. or a-c. motor. The "Silver Star" is made by the Star Washing Machine Co., 644 West Jackson boulevard, Chicago, from whom additional particulars regarding this appliance can be obtained.

## Features of "Utility" Electric Refrigerator.

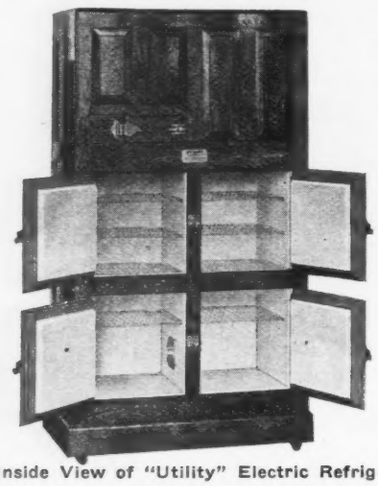
An electric refrigerator with many desirable features is being marketed by the Utility Compressor Co., Harper and Rivard streets, Detroit. The main points about this machine are thus set forth by the manufacturer: No installation expense; no stuffing box or seal; entire box for food, large sharp freezing chamber; no brine tank; hermetically sealed, all of which produce high efficiency, correct refrigeration, satisfactory



"Utility" Mechanical Refrigerating Unit.

automatic control, noiseless operation, low cost of maintenance and consistent performance.

It is stated that the "Utility" electric refrigerator will keep food properly without any attention from any member of the household. Automatic controlling devices turn the motor on at just the right moment, day or night, or holiday; the motor then runs for 15 or 20 min. until a predetermined temperature has been reached; at just that moment the current is cut off and the motor remains dormant for 40, 50 or 60 min.,



Inside View of "Utility" Electric Refrigerator.

according to conditions. These operations are repeated as frequently as conditions require.

The manufacturer states that it is only necessary to connect a cord from the box with the nearest suitable outlet. No running water connections are required, neither is it necessary to have pipes brought through the floor from the basement. The "Utility" electric refrigerator can be moved the same as any piece of furniture from one home to another without any expenditure for disconnecting pipes or reinstallation. The refrigerating fluid used is noninflammable. The sharp freezing chamber in the "Utility" electric refrigerator, where the ice cubes are made in less than 2 hrs., is large enough to be available for many other purposes. The chamber is 14 by 8 by 3.5 ins. The refrigerator does not require a brine tank (doing away entirely with leak possibilities) therefore providing additional space in the box for food storage.

The dimensions of the refrigerator are: Height, 70 ins.; width, 36 ins. and depth, 22 ins. It is porcelain lined and can be supplied in natural wood or white enamel finish. The accompanying illustrations show an inside view of the "Utility" electric refrigerator and the mechanical unit which does the refrigerating, this unit being placed in the upper part of the cabinet.

## New Sales Manual on Electric Water Heaters.

Do you know just how much hot water the average family consumes for dishwashing, for bathing, washing clothes, and for other household purposes? If you want to sell electric water heaters these statistics are of some importance. The new sales manual recently issued by the Automatic Electric Heater Co., Warren, Pa., maker of the "Sepco" automatic water heaters, carries numerous tables regarding the quantity of water required for home use, the proper temperature to which this water should be heated and much other valuable information. Average costs for hot water consumed in residences of different sizes are given, the figures being based on an investigation of several thousand actual cases.

## Exhauster Adaptable to Any Hood or System of Ductwork.

The Wing-Scruplex exhauster, shown in the accompanying illustration, has recently been placed on the market by the L. J. Wing Manufacturing Co., 352 West 13th street, New York City. It is stated that this unit combines the latest development in fan design, with a housing of convenient form in which the motor is easily accessible on the outside, clear of the path of the air being handled, where it will keep clean and cool. All working parts are entirely protected against injurious action of air or gases handled.

The manufacturer states that it economizes in space, because it is installed as an elbow in run of duct; in cost of installation, because its cost is low and requires no heavy expensive foundations, and in cost of operation and upkeep because it is continuous. The Wing-Scruplex exhauster is adaptable to any hood or system of ductwork.

## "Reverso" Toaster With New Bi-Polar Switch Plug.

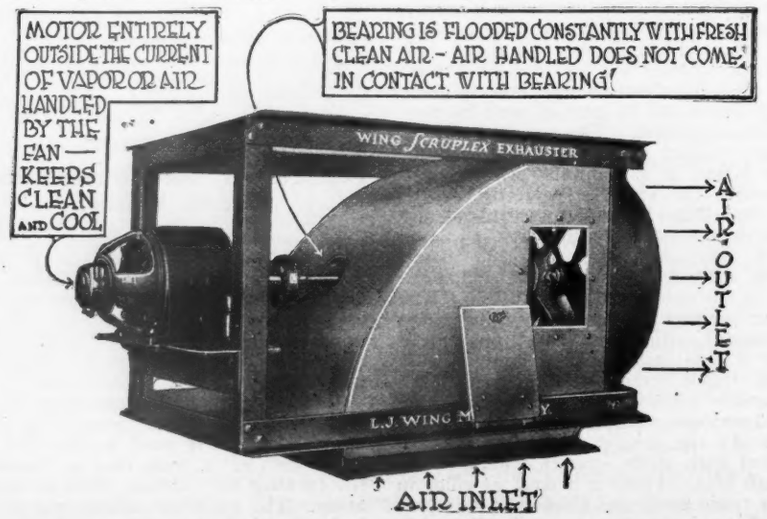
The Electro-Weld Co., 70 Monroe street, Lynn, Mass., has recently issued a new circular on the "Reverso" electric toaster which is now equipped with the new bi-polar switch plug. A touch of the finger and the current is turned on or off, and when it is off the appliance is "dead"—the bi-polar feature does that. It is stated that the heating element on the "Reverso" toaster is wound upon special reinforced vitrified porcelain. The device is properly timed to toast the bread just right.

## Electric Hair Cutter Designed for Tonsorial Trade.

After many months of severe service tests in the hands of practical barbers, the new "Royal" electric hair cutter is now being placed upon the market by the P. A. Geier Co., Cleveland. The outstanding feature of this device is the fact that all gears are located at the motor, instead of being in the cutter handle. This insures a smooth-running, light and vibrationless cutter which the barber can use without annoyance to the most finicky customer and without affecting the steadiness and pliability of his own hand. There are only three moving parts—eccentric, oscillating arm and blade—so there is no heating and no oil or grease near the hands.

As in all "Royal" products, the motor is strong and durable, and is equipped with a special speed control which permits the cutter to be regulated from 400 to 1000 cuts per minute. The flexible shaft is swiveled both at the motor and at the cutter handle, giving the utmost freedom and facility in handling. This shaft is light and flexible and travels at the clipper speed, and not at the motor speed, as the reducing gears are located at the motor. This arrangement minimizes vibration and makes the cutter much easier to handle skillfully.

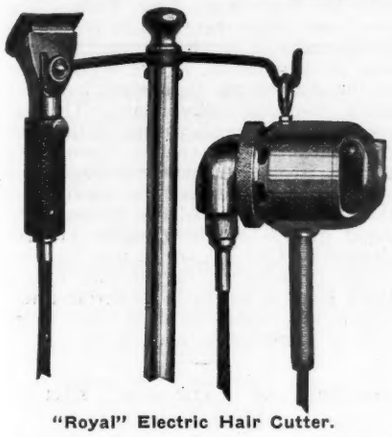
The handle is of polished hard rubber cast over a metal insert. The head can be easily detached by loosening a thumb-screw on the handle, without stopping the motor. This allows heads with different sized blades to be used with practically no delay. The adjusting screw to get the proper cutting tension on the blades, is lo-


MOTOR ENTIRELY OUTSIDE THE CURRENT OF VAPOR OR AIR HANDLED BY THE FAN — KEEPS CLEAN AND COOL
BEARING IS FLOODED CONSTANTLY WITH FRESH CLEAN AIR - AIR HANDLED DOES NOT COME IN CONTACT WITH BEARING!
WING SCRUPLEX EXHAUSTER
AIR OUTLET
AIR INLET

View of Wing-Scruplex Exhauster Showing Construction Features.

cated so that the adjustment can be made without delay. "Royal" cutters are furnished with No. 0 blade as regular equipment, but can be furnished with No. 1 and No. 2 blade if it is so specified.

The P. A. Geier Co. emphasizes the



"Royal" Electric Hair Cutter.

fact that the new "Royal" electric hair cutter has been perfected and thoroughly tried out in practical service before being offered to the trade. Repairs and servicing are reduced to the minimum in this device just as they are in the company's "Royal" vibrators and hair dryers.

It is claimed, as a result of practical tests and experience, that the new "Royal" will enable barbers to cut hair in about half the time required to do it by hand. The new cutter works perfectly over the fingers or over the comb and with very little practice it can be used just as deftly as the scissors. Speed and accuracy are obtained without noise, vibration or annoyance to even the most fastidious customer. Descriptive circulars may be had by writing to the P. A. Geier Co., 5112 St. Clair avenue, Cleveland.

## Meaning of Maker's Guarantee on Electrical Products.

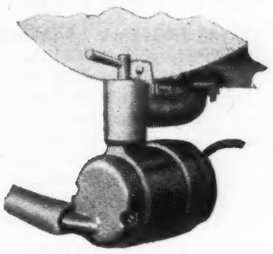
Misinterpretation of the manufacturer's guarantee on electrical products is responsible for a large proportion of "come-backs" in the form of servicing troubles, according to a recent article in the house organ of the P. A. Geier Co., Cleveland, which points out that it is a mistake for the salesman to make sweeping statements about the warranty. Intent wholly upon getting the order, the salesman, when he is asked about the guarantee, often replies, "why madame, if this appliance ever gets out of order, all you have to do is to call us up on the telephone and we will have a man right out to fix it. We guarantee it absolutely."

The customer accepts this at its face value, and then when the small son of the house sticks a carving knife into the motor to see what makes it go, or when a careless servant lets the cleaner fall downstairs, the dealer is expected to make good all damage without quibble or question. Careful reading of the guarantee would show that the manufacturer promises to be responsible for any defects in material or workmanship —nothing more. No one except the purchaser is accountable for accidents, abuse, neglect, or damage due to tinkering with the appliance. This should be made perfectly clear at the time of the sale, if later misunderstanding is to be avoided. Intelligent use of the guarantee makes for good feeling and better business, but misinterpretation of it is a trouble-breeder.

## Motor-Driven Pump Unit for Use With Washing Machine.

The electric "Washerpump" is a new device recently placed on the market by Burleigh, Morrison & Gowing, 80 Boylston street, Boston. The main features of this appliance, which is shown in the accompanying illustration, are thus enumerated by the manufacturers:

The "Washerpump" is a small motor-



Electric "Washerpump."

driven pump unit that empties the water from the washing machine into the sink or set tub at the rate of 8 g. p. m. It is simple in construction and can easily be attached to any type of washing machine, either by screwing onto the drain valve. as illustrated, or by mounting on the frame and connecting to the drain by a short piece of hose. The cost of electricity to operate this device is practically negligible, and it can be connected to any suitable outlet. It is stated that this device saves the expense of making drain connections to the plumbing.

## Additions to "Universal" Line of Electrical Appliances.

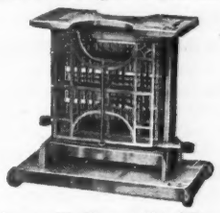
Four additions have recently been made to the "Universal" line of electrical appliances manufactured by Landers, Frary & Clark, New Britain, Conn., these

"Universal" Coffee Urn.

devices being shown in the accompanying illustrations.

"Universal" Colonial Tilting Kettle.

The manufacturers state that the reversible toaster has an original device for reversing the toast without being touched by the fingers, and notwithstanding the fact that it is a reversible toaster the design is such that the bread is brought close to the unit,



"Universal" Reversible Toaster.

thereby effecting a considerable saving in the amount of energy used.

The new grill combination has a snap switch which is detachable when cleaning the appliance. It is equipped with a removable rack with four pans for poaching eggs.

The distinctive appointments of the "Universal" coffee urn, such as the ivory faucet, handles and feet, the cut glass top and swinging cast handles, make it especially suitable for gift purposes. The pot is of extra heavy gage copper artistically finished in nickel or silver plate, the inside being silver lined. The urn is equipped with "Universal" unit and fusible plug safety device, etc.

The "Universal" tilting kettle permits

"Universal" Grill Combination.

water to be poured without lifting it from the stand. It is made in colonial design, nickel or silver plated on copper and silver lined.

## Data on Reidon Plan for Selling Lighting Fixtures.

The Reidon Co., 129 Huron street, Toledo, O., which is engaged in the marketing of electric lighting fixtures and glassware, has recently issued the following printed matter outlining its sales policy for merchandising lighting fixtures: A 24-page booklet entitled "How to Sell Reidon Life-Long Lighting Fixtures"; an 8-page booklet entitled "Shorter Cuts to Surer Sales"; a folder illustrating lighting fixtures for various rooms in the home, and a folder reproducing several suggestions for advertisements which the contractor-dealer may be able to use to advantage as "copy" for his local newspaper.

The first booklet mentioned contains data on how Reidon fixtures are built and the various processes of manufacture are illustrated. On the last two pages of the booklet are printed several form letters which may be used as a basis by contractor-dealers to keep in touch with new home builders and prospects remodeling their homes.

The "Shorter Cuts to Surer Sales" booklet contains a discussion of the problem of selling lighting fixtures,

briefly considers some of the reasons why present selling methods are not effective, and suggests a solution of the matter by the use of the Reidon exhibit portfolio service.

## Toy Washing Machines Equipped with Jefferson Motor.

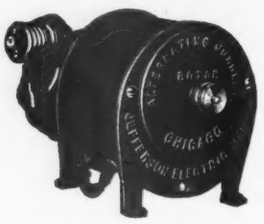
The Jefferson Electric Manufacturing Co., 426 South Green street, Chicago, has recently issued bulletin No. 581 illustrating and describing its new "Jiffy-Jeff" toy washing machines, which are shown in the accompanying illustrations. The manufacturer states that these machines are constructed entirely of galvanized iron and zinc, making them rustproof and unaffected by the ingredients used in washing. Each machine is equipped with a revolving perforated cylinder which is watertight. The exterior is finished in gray.

Electrical Type of Toy Washing Machine.

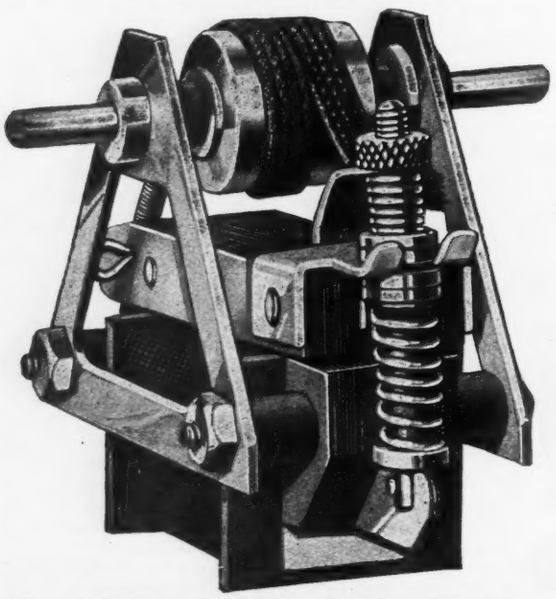
The No. 50 electrical type, is equipped with a motor of new design manufactured by the Jefferson company, which connects to the regular a-c. lighting circuit. This motor (described in bulletin No. 585) will operate motor-driven toys of every description. It is stated that the motor has neither wound armature, commutator or brushes, nor in fact any rotating parts, in the ordinary sense. The Jefferson rotor consists of a simple a-c. magnet, the armature of which is so balanced that it vibrates synchronously with the frequency of the current. This reciprocating motion is transformed into rotating motion by an ingenious application of a belt "whipping" on a pulley. No connecting gears are used. This rotor is essentially a slow-speed motor, thus eliminating the necessity for gears which must be used with other types of motors.

Hand Type "Jiffy-Jeff" Toy Washing Machine.

The No. 53 hand type "Jiffy-Jeff" toy washing machine is similar to the No. 50 except that it is equipped with a hand crank in place of the motor. In operation these toy washing machines function in exactly the same manner as the larger machines. The clothes are placed in the cylinder, the motor started and the articles come out clean in a short time. Primarily "Jiffy-Jeff" washing machines are toys, but they can be used for washing any number of small articles.



Jefferson A-C. Toy Motor.



View of Jefferson A-C. Motor With Case Removed.

## Hardinge Acquires Quigley Pulverized Fuel Department.

Quigley Furnace Specialties Co., Inc., 26 Cortlandt Street, New York, announces the acquisition of the pulverized fuel department by the Hardinge Co., 120 Broadway, New York. The purchaser states there will be no change in the method of conducting the business at their offices, as the organization of the engineering department has been taken over practically intact. The experience and manufacturing facilities of the Hardinge Co. enables them, with their present equipment and augmented staff, to further extend the activities of the Quigley pulverized fuel system. The rapid growth of the Quigley Furnace Specialties Co., Inc., refractory business (high temperature cement and insulation) made it advisable to devote attention to this branch of their work which will be continued as heretofore.

## Features of "Toreado" Electric Hair Drier.

The "Toreado" electric hair drier, made by the Toreado Sales Co., 14 West 40th street, New York City, gives hot or cold air at the press of the thumb and is light enough to be easily handled.

It is equipped with a well ventilated motor that will operate with either a-c. or d-c. service, and is provided with removable and replaceable carbon brushes that are readily accessible from outside the casing. In the nozzle is located a heating element constructed of special wire that does not become red hot and is so mounted upon a frame that it can be quickly taken out and renewed when necessary. On the handle is a thumb switch which can be conveniently worked by the thumb and one, two or three presses gives hot, cold and off, successively. Thus warm or cold air may be blown as desired. The device weighs about 2 lbs.

"Toreado" Electric Hair Drier.

# ACTIVITIES IN THE TRADE

***Business Developments, Sales Agencies, Trade Literature and Miscellaneous Items Concerning Electrical Manufacturers and Allied Business Interests***

**Crocker-Wheeler Co.,** Ampere, N. J., has filed plans for the erection of a 1-story brick extension at its plant.

**Paramount Electric Supply & Fixtures Co.,** Philadelphia, has leased the building at 251 Market street for a local establishment.

**Worthington Pump & Machinery Co.,** 265 Third street, Cambridge, Mass., has filed plans for the erection of an addition to its plant on Fifth street, East Cambridge.

**William A. Loveland, Inc.,** 2014 Sansom street, Philadelphia, operating an electrical contracting business, has leased the 2-story building at 2025 Sansom street, for expansion purposes.

**Steel City Electric Co.,** 1207 Columbus avenue, Pittsburgh, has issued distributors' discount sheet No. 212, effective Nov. 9, covering outlet boxes, electrical hardware and other specialties manufactured by the company.

**Hub Electrical Supply Co.,** 558 Melrose avenue, New York City, manufacturer of electrical specialties, has acquired the 3-story building at 616 Courtland street for a new establishment. Improvements will be made. Joseph Newman is president.

**Paradox Battery Manufacturing & Service Co.,** 401 Berlin Arcade building, Milwaukee, was recently incorporated in Wisconsin to manufacture storage batteries of all descriptions. The company plans to manufacture about 50% of the material used.

**Duparquet, Huot & Moneuse Co.,** 108-114 West 22d street, New York City, has issued under date of Nov. 1 price list No. 6 applying to catalog No. 23. This new price list represents on most of the items a reduction of 10% to 30% from prices formerly in effect.

**Jordan Bros., Inc.,** 74 Beekman street, New York City, has issued a new publication covering its commutator truing devices. The company states that the device is used to true commutators and slip rings without taking armatures and rotors out of the machine.

**Morse Chain Co.,** Ithaca, N. Y., manufacturer of frictionless rocker joint chains and high speed silent running flexible gearing for power transmission, has announced that its Philadelphia office has been moved to new quarters in the Fuller building, 10 South 18th street.

**Combustion Engineering Corp.,** 43 Broad street, New York City, manufacturer of mechanical stokers, furnace equipment, etc., has announced the recent opening of two branch offices, one at 216 Latta arcade, Charlotte, N. C., in charge of T. E. Nott, and the other at Seattle, Wash., where the company is represented by the Fryer-Barker Co., 1133 Henry building.

**American Steel & Wire Co.,** Grove street, Worcester, Mass., is planning early occupancy of the addition at its South Works, now nearing completion, to be 3-story, estimated to cost $150,000. Electrical equipment for operation will be installed. C. E. Goodrich is engineer.

**Louisville Electric Manufacturing Co.,** Louisville, Ky., required the recent increase in the company's capitalization from $75,000 to $115,000, according to John B. McFerran, Jr., secretary-treasurer. The company does not contemplate expanding its plant at the present time, intending to use its present facilities in caring for its increased business.

**Metropolitan Vickers Electrical Co., Ltd.,** with principal offices in Manchester, England, has completed arrangements with the Railway & Industrial Engineering Co., of Greensburg, Pa., whereby the latter company grants to the Metropolitan Vickers Electrical Co., Ltd., the exclusive rights to manufacture and sell apparatus of the "R. & I. E." design in the entire British Empire with the exception of the British North and South American possessions.

**Westinghouse Electric & Manufacturing Co.,** East Pittsburgh, Pa., has published and is distributing Vol. III, No. 1, of Westinghouse Electrification Data. This issue treats of the economies of railroad electrification, and includes a portion of the progress report made by the Super-Power Survey to the ex-Secretary of the Interior. Several railroads are mentioned, including the Norfolk & Western, New York, New Haven & Hartford, the Erie railroad, the Grand Trunk railroad, and the Chicago, Milwaukee & St. Paul railroad.

**Bucyrus Co.,** Milwaukee, announces the removal of its New York office to suite 728, 30 Church street, with E. G. Lewis in charge as eastern sales manager, the announcement to become effective Dec. 1. Mr. Lewis has had many years experience, having been connected with the sales organization of the Bucyrus Co. both in Chicago and New York and has also had wide experience in railroad and general contractors' work both in this country and abroad. M. J. Woodhull, who has had large experience in the manufacture and sale of railroad equipment with the Bucyrus Co. and elsewhere, is appointed central sales manager to succeed Mr. Lewis and will have charge of the Chicago office, 622 McCormick building. E. R. Weber is appointed northern sales manager, 1224 McKnight building, Minneapolis, to succeed J. N. Gawthrop, who will become associated with Mr. Lewis in New York. Mr. Weber is well known to the contractors in the northwest, having been connected with the engineering, manufacturing and sales departments of the Bucyrus Co. for the last 15 years.

**Conveyors Corporation of America,** 326 West Madison street, Chicago, has issued a new folder describing its "American" air tight door, which it is stated is a castiron door of exceptional design and build. Air tight, its use is desirable for ash pits, boiler settings, coke ovens, core ovens, bake ovens, oil stills, dryers, retorts and kilns. The company states that the "American" air-tight door is already in wide use. Door and frame are of castiron; all bearing surfaces are machined to make an air-tight joint; floating hinges pivoted to frame at center insure an even pressure over the door. A ventilated door liner prevents warping. The door is made in four convenient sizes—18 by 18, 22 by 26, 24 by 24 and 24 by 36 ins.

**Electric Furnace Co.,** Alliance, O., has recently exported two of its electric melting furnaces to England. Both of these units are of the rolling mill type, arranged for direct pouring of the metal into molds. Johnson-Matthey & Co., Ltd., of London, England, purchased a 50-kw. nose-tilting furnace, with hydraulic tilting mechanism and this furnace is 500 lbs. hearth capacity and is to be used for melting silver bullion. Allen Everitt & Sons, Ltd., Birmingham, England, have ordered a 125-kw. nose-tilting type furnace, and this furnace has 2000 lbs. hearth capacity and is tilted by means of a motor-operated mechanism. This is the second "Baily" electric furnace to go into service in the oldest rolling mill in England, the first furnace being used for melting pure copper and the second furnace for melting 60-40 brass.

**Powdered Coal Development Corp.** has been organized with headquarters at Omaha, Neb. This company controls the Pruden patents for the burning of pulverized coal in the western half of the United States. The company is actively engaged in financing and erecting central pulverizing plants and installation of equipment for burning pulverized coal. Byron B. Oberst, formerly with the Interstate Oil & Refining Co., is president of the new corporation. The board of directors includes R. M. Robertson, construction engineer, American Smelting & Refining Co.; A. E. Hall, manager, Omaha plant, American Smelting & Refining Co.; Joseph C. Weeth, president, Harmon Weeth Coal Co.; J. J. Dodds, president, Dodds Lumber Co.; Bert Phillips, formerly chief engineer, Collis Products Co., Omaha plant, and Irving H. Arey, with the Republic Metal Ware Co. It is stated that the new company should provide a stimulus to the powdered coal industry throughout its territory, and has on its staff competent engineers for the handling of any problem involving the efficiency of fuel. This fact should prove of considerable assistance to companies needing fuel efficiency engineers in their territory.

# PERSONAL MENTION

***Biographical Sketches and Chronicle of Changes in Business Connections, Promotions and Other Personal News of the Industry***

DR. K. G. MATHESON, president of the Georgia School of Technology, Atlanta, resigned recently, effective in April, 1922.

CHAS. C. SNYDER, formerly distributor of Westinghouse batteries, is now manager of the Los Angeles branch of the Coast Equipment Co., Los Angeles.

T. H. MCWHIRK, who was formerly connected with the Atlanta (Ga.) office of the General Electric Co., is now chief electrician aboard the U. S. S. *Maryland*.

W. J. TIMMINS, formerly assistant chief of the research laboratory, Edison Storage Battery Co., is now construction engineer with Pewick Bros., Des Moines, Ia.

GEORGE F. WHITWORTH, formerly assistant engineer with the Pacific Gas & Electric Co., San Francisco, is now with the University of California, Berkeley, Cal.

A. W. LYNCH, formerly superintendent of the water and light department of Forest City, N. C., is now sales engineer of the Piedmont Electric Co., Asheville, N. C.

R. W. ROBINSON, formerly chief operator of the Nevada-California Power Co., Goldfield, Nev., is now construction engineer with the Thomas H. Ince Studios, Culver City, Cal.

W. D. CANNON, formerly research graduate assistant, University of Illinois, is now engineering assistant of the Western Union Telegraph Co., 195 Broadway, New York City.

ARTHUR G. KIMBALL, president of Landers, Frary & Clark, New Britain, Conn., has been chosen secretary of the state commission on the pollution of the Connecticut waterways.

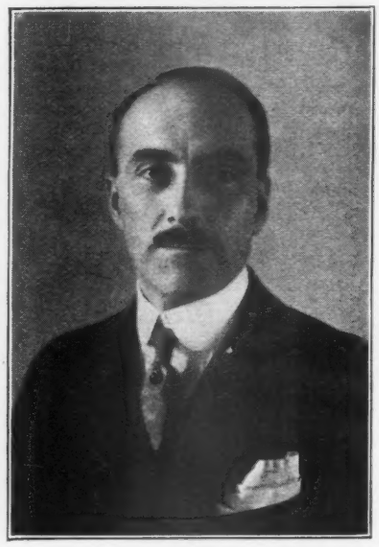
E. E. PERKINS, JR., formerly with the Carroll Electric Co., Washington, D. C., has been appointed assistant instructor in electrical engineering at the University of Illinois, Urbana, Ill.

HARRY C. ABELL, formerly vice-president of the American Light & Traction Co., has been elected a vice-president of the Electric Bond & Share Co., 71 Broadway, New York City.

J. C. LAWLER, previously connected with the purchasing department of the Great Western Sugar Co., of Denver, is now manager of the "J-E" Battery Co. of Southern California, Los Angeles.

ARSENE RIVERO, formerly in the transformer drafting department of the Westinghouse Electric & Manufacturing Co., is now in the engineering department of the New York Edison Co.

CARL F. DIETZ, vice-president and sales manager of the Norton Co., Worcester, Mass., has resigned to become president and general manager of the Bridgeport Brass Co., Bridgeport, Conn. He succeeds as president Fred J. Kingsbury, of New Haven, who wishes to be relieved of some of his responsibilities and becomes chairman of the board of directors. Mr. Dietz will also be general manager. He has been connected with the Norton Co. for 10 yrs., first as plant engineer, then as assistant sales manager, and afterward as sales manager of the wheel division of the business, and 2 yrs. ago when the Norton Co. and the Norton Grinding Co. were consolidated he was made vice-president and sales manager. He was born in New York, Feb. 12, 1880, and was graduated from Stevens Institute of Technology in 1901, and subsequently took post graduate courses in the Royal Technical College, Berlin, in sciences, metallurgy and mining. Early in his career he was employed for 3 yrs. at plants of the United States Steel Corp., largely in blast-furnace operation and large gas-engine installations. In 1905 he engaged in development of zinc-smeltering processes, and later operated a mining lease in Utah, installing a dry method for concentrating lead-silver ores. He designed and built modern ore-milling plants for the American Glue Co. as a part of its sandpaper factory at East Walpole, Mass.; Grunelli Chemical Co., Park City, Utah, where the separation of iron and zinc sulphides was the problem; and the Ozark Smelting & Mining Co., Magdalena, N. M., where zinc ore required concentration for paint making. In 1908 he joined the Minerals Separation, Ltd., London, as consulting engineer and in the interest of this company developed treatment of methods at the Dunderland iron ore deposits in Norway, north of the Arctic Circle, and studied ore treatment methods for properties in Russia, Bolivia, Australia, and Africa. He put into operation the San Francisco del Oro mines in Mexico, yielding complex lead and silver ores. He is a member of the American Society of Mechanical Engineers and the American Institute of Mining and Metallurgical Engineers.



Carl F. Dietz.

CLINTON E. MORGAN has been elected general manager of the Brooklyn City Railroad Co., Brooklyn, N. Y., with all city traction lines under his direction.

W. B. MISER, manager of the Drumright (Okla.) division of the Oklahoma Gas & Electric Co., has been elected president of the county organization of Boy Scouts.

A. E. HOLLOWAY, superintendent of the commercial department, San Diego Consolidated Gas & Electric Co., has been elected president of the Electric Club of San Diego, Cal.

R. J. WENSLEY, engineer of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., has left for an extended trip through England to study electrical conditions.

RHODES S. BAKER gave an interesting address on the subject of electricity and its future possibilities before a recent meeting of the Dallas (Tex.) Electric Club, at the Oriental hotel.

J. F. OWENS, vice-president and general manager of the Oklahoma Gas & Electric Co., was toastmaster at the annual banquet of the Oklahoma section of the American Society of Engineers held in Oklahoma City last month.

CHARLES D. KUNKEL has accepted a position as power apparatus specialist with the Western Electric Co., Los Angeles. He was formerly sales engineer with the Westinghouse Electric & Manufacturing Co. at San Diego, Cal.

DR. H. S. OSBORNE, of the American Telephone & Telegraph Co., gave an interesting address on the subject of "Telephone Transmission Between Cuba and Catalina" at a recent meeting of the Boston section of the American Institute of Electrical Engineers.

E. FRIEDLAENDER, superintendent of the electrical department at the Edgar Thomson Works, Braddock, Pa., gave an interesting address on the subject of "Electrical Hazards," at a recent meeting of the foremen's safety course of instruction, conducted by local industrial plants.

L. E. BROWN, of the Springfield (O.) Light, Heat & Power Co., has been appointed a member of the Station Operating Committee of the Ohio Electric Light Association to succeed D. M. Mackie, who has resigned on account of being transferred to another company outside of the state.

P. G. MCCONNELL, formerly a department manager of the Belden Manufacturing Co., resigned Oct. 31 to enter the field for himself. He will specialize in the manufacture of automobile timer sets, attachments and special cords and connectors at 426 South Clinton street, Chicago, doing business as the McConnell Cable & Specialties Co.

# BUSINESS OPPORTUNITIES

***News of Electrical Construction Projects in All Parts of the Country, Proposals Invited, Foreign Trade Openings and New Companies***

## EASTERN STATES.

**Concord, N. H.**—Boston & Maine Railroad Co., Boston, has awarded a contract to the H. Wales Lines Co., Meriden, Conn., for erection of a 1-story, brick power house at its works at Concord, estimated to cost $60,000.

**Boston, Mass.** — Edison Electric Illuminating Co. is perfecting plans for an issue of 45,056 shares of capital stock at $130 a share par value, the proceeds to be used for general operations and financing.

**Cambridge, Mass.** — Considerable electrical equipment will be installed in the 1-story plant addition to be erected by the Mack Motor Truck Co., 185 Massachusetts avenue.

**Cambridge, Mass.**—Cambridge Electric Light Co., 46 Blackstone street, is having plans prepared for the erection of a 1-story electric station. French & Hubbard, 210 South street, Boston, are engineers.

**South Norwalk, Conn.**—Considerable electrical equipment will be installed in the 1-story plant to be erected by the Norwalk Lock Co., Marshall street, estimated to cost $35,000.

**Brooklyn, N. Y.**—Kings County Lighting Co., 4802 New Utrecht avenue, plans construction of a 1-story building.

**Ithaca, N. Y.**—New York State Gas & Electric Corp., 123 South Cuyahoga street, has awarded a contract to Driscoll Brothers, 135 South Aurora street, for extensions and improvements in its plant at Cortland, N. Y., to cost $25,000.

**Niagara Falls, N. Y.**—The city council will install a new ornamental street-lighting system on Niagara street, from First to Fourth street.

**Garwood, N. J.**—Considerable electrical equipment will be installed in the 1-story ice-manufacturing plant to be erected by the Service Ice Co., at North avenue and Second street. Frank H. Quimby, 110 William street, New York City, is architect.

**Gloucester, N. J.**—The Welsbach Co. will make improvements in the steam powerhouse at its plant.

**Wildwood, N. J.**—Plans have been completed for construction of an electric railroad between Wildwood and Pennsgrove. Address Mayor W. Courtland Smith.

**Delaware City, Del.**—Bondholders of the Delaware City Light & Water Co. have purchased the local plant and property of the company at a receiver's sale, and propose to operate the utility. Improvements are planned.

**Milford, Del.**—The common council has arranged for a daylight electric light and power service, heretofore operated only at night.

**Lansdale, Pa.**—The installation of new equipment at the municipal electric power plant is being considered by the borough council, to be used for increased service. Superintendent Durk is in charge.

**Lilly, Pa.**—Consumers Heat & Power Co. has been organized under state laws to operate a local light, heat and power system. W. L. Piper is treasurer.

**Mifflinburg, Pa.**—Electric motors and other industrial electrical equipment will be installed in the 2-story plant to be constructed by the Mifflinburg Body Co., manufacturer of automobile bodies.

**Philadelphia, Pa.**—The Girard Estate, Lafayette building, has awarded a contract to J. H. B. Ismond, 612 Race street, for construction of an addition to its powerhouse at 129-31 South Orianna street.

**Philadelphia, Pa.**—The Bureau of Water has awarded a contract to the General Electric Co., Witherspoon building, for transmission cables for the Belmont and Shawmont pumping stations.

**Philadelphia, Pa.**—In accordance with a contract just made with the city, the Philadelphia Rapid Transit Co. will remove its overhead trolley system on Passyunk avenue.

**Philadelphia, Pa.**—Electric motors and other industrial electrical equipment will be installed in the 1-story machine shop to be erected by the Department of Public Works, Bureau of Highways, City Hall, at 30th and Spring Garden streets.

**Pittsburgh, Pa.**—Considerable electrical equipment, mechanical draft apparatus, etc., will be installed in the school building to be erected at Greenfield avenue and Alger street by the Board of Education, estimated to cost $500,000.

**Schuylkill Haven, Pa.**—Eastern Pennsylvania Light, Heat & Power Co. has been organized under state laws to operate a light and power system in the vicinity of Pottsville, Pa. L. A. Reinhardt, Schuylkill Haven, is treasurer.

**Scranton, Pa.**—The board of directors, Marywood College, has awarded a contract to Beilman & Son, 220 Ash street, for erection of a 1-story powerhouse at the institution on Adams avenue.

**Baltimore, Md.**—The United Railways are considering the construction of a trackless trolley system between Gwynn Oak Junction and Randallstown. Details of the installation and estimates of cost are being made.

**Cumberland, Md.** — The "white way" street-lighting system on Virginia avenue in the South End section, recently completed, was placed in service with an extensive celebration on Nov. 4.

**Cumberland, Md.**—Thomas B. Finan, Cumberland; and Townsend, Scott & Son, 209 East Fayette street, Baltimore, have perfected arrangements for the purchase of the Edison Electric Illuminating Co. and the Cumberland Electric Railway, both operating in this district, for a consideration said to be in excess of $2,000,000. The new owners will reorganize the two utilities and consolidate under one central management. A securities issue is being arranged, the proceeds to be used for plant extensions and betterments, including the installation of new machinery and other operating equipment.

**Frostburg, Md.**—Consolidation Coal Co., Consolidation, near Frostburg, is planning rebuilding its powerhouse, recently damaged by fire.

**Lonaconing, Md.**—Home Electric Light Co., operating the local light and power system, has filed notice of increase in capital from $25,000 to $50,000.

**Hopewell, Va.**—The local power plant, including water works and other utilities, with electric transmission system, has been acquired from the du Pont Chemical Co. by the Industrial Service Corp. of Virginia. The new owner will take immediate possession and operate the plant in the future. A number of extensions and improvements are planned. J. F. Muhlig is general manager of the Industrial company.

**Stuart, Va.**—Rangely Power Co. has been incorporated with a capital of $50,000, to operate an electric light and power system in this district. J. L. Hooker is secretary.

**Maben, W. Va.**—Raleigh-Wyoming Coal Co. has awarded a contract to the Rust Engineering Co., 1901 Fifth avenue, Pittsburgh, Pa., for the erection of a 1-story power plant at its properties.

**Enfield, N. C.**—The city council has arranged an appropriation of $190,000 for municipal improvements, to include the installation of an electric lighting system. William C. Olsen, Kinston, N. C., is consulting engineer.

**Littleton, N. C.**—Electric lighting bonds amounting to $15,000 have been voted. Address McM. Furgurson, mayor.

**Pilot Mountain, N. C.**—The city council is perfecting plans for the installation of a municipal street-lighting system.

**Red Springs, N. C.**—The town council is planning a bond issue of $50,000 for municipal improvements, including the installation of a municipal electric lighting plant.

**Stantonsburg, N. C.**—The town council is planning a bond issue of $20,000, the proceeds to be used for the installation of an electric light and

power system. G. L. Hill, town clerk, is in charge.

**Winston-Salem, N. C.**—Bids were received Nov. 16 for a municipal power house. Charles Barton Keene is the architect.

**Louisville, Ga.**—The city light and water plant recently suffered a fire loss of $20,000. Address the mayor.

**Metter, Ga.**—The city council is planning for extensions in the municipal electric power plant.

**Green Cove Springs, Fla.**—The common council is arranging for a bond issue of $150,000 for municipal improvements, the work to include erection of an addition to the municipal electric plant, with the installation of new machinery.

**Jacksonville, Fla.**—The city commission is considering the installation of a new lighting system in Hemming Park. Plans will be prepared at an early date.

## NORTH CENTRAL STATES.

**Canton, O.**—Electric motors and other electrical machinery, refrigerating apparatus, etc., will be installed in the 1-story plant to be erected by the Canton Ice Delivery Co., Massillon, O., to cost $100,000.

**Sidney, O.**—Bids were received Nov. 25 for furnishing electric energy to the city of Sidney for power purposes for a period of ten years. Address Joseph A. Clem, director of public service.

**Troy, O.**—The city council passed an ordinance providing for issuance of $30,000 worth of electric light plant bonds, in anticipation of salvaging the old plant. Address Charles Enyeart, service director.

**Sandusky, Mich.**—The city council has preliminary plans under way for construction of a municipal electric power plant, to cost $45,000. Bonds for this amount will be voted. L. C. Reed, city engineer, is in charge.

**Mitchell, Ind.**—The E. E. Dean Co., Lemcke annex, Indianapolis, Ind., has acquired the municipal electric lighting plant here for a consideration of $45,000, and proposes to operate the property. Improvements are planned.

**Mt. Summit, Ind.**—Sulphur Springs is to have electricity and power through a connection with the Traction Light & Power Co. at Mt. Summitt. Address Herbert McShirley, town clerk.

**Union City, Ind.**—Union City Electric Co. has increased its capital from $50,000 to $100,000.

**Vincennes, Ind.**—Damage amounting to $2000 resulted from a recent fire at the plant of the Central States Gas Co. Address Bernard Fowler, manager.

**Chicago, Ill.**—Bids were received on Nov. 22nd for the furnishing of sundry kinds and sizes of incandescent lamps. Address William G. Keith, Room 614, City Hall.

**Harvey, Ill.** — Ornamental street lighting system will be extended. Address the mayor.

**Quincy, Ill.**—A fund is being raised for erecting a "white way" around Jefferson school. Address J. F. Garner, Lions Club.

**Sherrard, Ill.**—Sherrard Power Co. will issue $40,000 worth of capital stock.

**Weldon, Ill.**—About seven ornamental lighting posts will be erected on Main street. Address chairman of Community Club.

**Wilmington, Ill.**—Consoer Engineering Co., 140 South Dearborn street, Chicago, is surveying the streets as a basis for making estimates for paving. Boulevard lights will also be installed. Address the mayor.

**Beloit, Wis.**—Beloit Water, Gas & Electric Co. has purchased the plant of Gleasman Brothers at Rockton, Ill. The Beloit Company will abandon the Rockton plant and will supply current for lighting and power from Beloit.

**Gilbert, Minn.**—Bids were received on Nov. 22 for the installation of electric apparatus according to plans already prepared. Address C. G. Fulton, clerk of school district No. 18.

**Milan, Minn.**—Milan Light & Power Co. will extend a high line of Halloway. Address the manager of the company.

**Minneapolis, Minn.**—Bids will be asked for street lighting contracts for 1922, which appropriation amounts to $430,000. Address W. C. Buck, chairman of public lighting committee.

**Moorhead, Minn.**—M. S. Hyland, Fargo, N. D., has received contract for electric lighting posts to be installed on First avenue, south about five blocks, estimated to cost $80.58 per post. Address R. G. Price, city clerk.

**Winona, Minn.**—Plans are being prepared for improvements on lines of the Tri-State Telephone & Telegraph Co. at an estimated cost of $15,000. Address C. B. Crawford, local manager of company.

**Muscatine, Ia.**—A committee has been appointed to investigate the cost of purchasing the light and water plant. Address the city auditor.

**Crane, Mo.**—The J. P. Cantrell Oil Co. is planning the erection of an electric lighting plant. An ice manufacturing plant will also be constructed.

**Independence, Mo.**—The city council is planning for extensions and improvements in its power plant to cost $35,000. A new spray system and other equipment will be installed. Arthur Smith, City Hall, is engineer for the work.

**St. Joseph, Mo.**—Chas. D. Fox, superintendent, places the cost of improving the city light plant at $300,000.

**Springfield, Mo.**—H. O. Smith and associates are perfecting the organization of a new company to construct and operate an electric power plant at Osceola, Mo., estimated to cost $100,000. Plans will be prepared at an early date.

**Windsor, Mo.**—The town council plans to install a "white way" system. Address the mayor.

**Junction City, Kan.**—Union Light & Power Co. is planning the rebuilding of the portion of its plant recently damaged by fire.

**Pittsburg, Kan.**—Burgess Coal Co., Mulberry, near Pittsburg, will install considerable electrical machinery in connection with the rebuilding of its coal tipple and plant, to replace the works recently destroyed by fire.

**Wymore, Neb.**—Beatrice Power Co. is negotiating with the Union Pacific railroad to erect their transmission line to Beatrice, a distance of 24 mi.

## SOUTH CENTRAL STATES.

**Falmouth, Ky.**—The common council is planning extensions in the municipal electric lighting plant.

**Newport, Ky.**—Newport Electric Light & Power Co. recently increased its capital stock from $15,000 to $100,000.

**Knoxville, Tenn.**—The city is considering the installation of a telephone and alarm system. Address N. B. Kuhlman, city commissioner.

**Memphis, Tenn.**—Fire destroyed a portion of the powerhouse at the plant of the Consumer's Coal & Ice Co., Orleans street, on Nov. 4.

**White Pine, Tenn.**—White Pine Power & Light Co. is completing plans for the construction of an electric power plant. G. M. Felmet is head.

**Columbia, La.**—The common council has disposed of a bond issue of $30,000, the proceeds to be used for the installation of a municipal electric plant, in conjunction with a waterworks system.

**Hammond, La.**—The city council is planning extensions and improvements in its street-lighting system. A bond issue for the work will be provided.

**Picron, Ark.**—Arkansas Light & Power Co. plans improvements to its plant. Address H. C. Couch, president and general manager.

**Marlow, Okla.**—The common council is having plans prepared for extensions in its power plant to cost about $50,000. V. V. Long & Co., 1300 Colcord building, Oklahoma City, Okla., are consulting engineers.

**Tulsa, Okla.**—J. W. Page is interested in the project of building a dam on Grand river, where the Cowskin river flows into it in Delaware county.

**Brownfield, Tex.**—An election will be held to vote on the question of issuing $35,000 worth of waterworks and municipal light plant bonds. Address the city clerk.

**Currie, Tex.**—Currie Light & Power Co. has acquired a local site and plans the construction of a new plant. Work will also be placed under way at an early date on the installation of a local lighting system.

**Dallas, Tex.** — Texas Interurban Railway Co. will soon call for bids for power equipment and other electrical work in connection with the extension of its line to Terrell. The entire project is estimated to cost $1,500,000.

**Dallas, Tex.**—Hardy Light Co. has been incorporated with a capital of $10,000 to operate an electric light and power system. The company is headed by J. V. Hardy, W. F. Carter and W. A. Boatman, Dallas.

**Edinburg, Tex.**—The common council has awarded a contract to the Gulf

Machinery & Ship Supply Co., Galveston, Tex., for erection of a municipal power plant. H. E. Wilcox, city engineer, is in charge.

**Houston, Tex.**—The city will expend $500,000 in extending the electric generating plant. Address S. R. Berton, manager of the Houston Light & Power Co.

**Llano, Tex.**—The common council has commenced the installation of an improved street lighting system in the business section and other parts of the municipality.

**Mexia, Tex.**—The Central Texas Ice, Light, Water & Sewerage Co. will install new equipment at its local power plant, to cost about $50,000.

**Rio Hondo, Tex.**—Rio Hondo light plant was destroyed recently by fire. Address manager of plant.

**San Antonio, Tex.**—Texas Central Power Co., recently organized with a capital of $1,000,000, is planning the construction and operation of a number of electric power plants. Service will be furnished at Victoria, Kingsville, Cuero, Bishop and other points in this locality. Plans will be prepared at an early date. R. W. Morrison and James L. Shepard, Jr. head the company.

**Vernon, Tex.**—The city council is arranging for an appropriation of $75,000, for installation of its proposed electric power plant and system. Bonds will be voted. Harry Mason is mayor.

## WESTERN STATES.

**Great Falls, Mont.**—Montana Power Co. plans to erect a dam and power plant below Mystic Falls at a cost of $1,000,000. Address J. R. Hobbins, manager.

**Seattle, Wash.**—J. G. Galvin, care of Maurice D. Leehey, 620 Alaska building, has applied to the Federal Power Commission for a preliminary permit to build a dam 100 ft. high, conduit and powerhouse on Aarons creek, at the head of Blake channel on the mainland east of Wrangell island and 22½ mi. from Wrangell, Alaska, for the purpose of manufacturing pulp and paper.

**McMinnville, Ore.**—Percy A. Cupper, state engineer, has petitioned for permission to construct a dam on the headwaters of Nestucca river, a tunnel ½ mi. in length, 5 mi. of 48-in. pipe line and a powerhouse, at an estimated cost of $350,000. The power is to be used for municipal purposes for the city of McMinnville.

**Eureka, Cal.**—Western States Gas & Electric Co. has been granted authority to develop storage reservoirs on tributaries of the American river, and to construct, 10 mi. above its present plant, a new hydroelectric plant with an ultimate capacity of 100,000-hp.

**Los Angeles, Cal.**—San Joaquin Light & Power Corp. has applied to the Federal Power Commission for a preliminary permit for the erection of one large reservoir, three conduits, two diversion dams and three powerhouses on the south fork of Merced river; one dam and power house on main stream of Merced river in Mariposa county, Cal., for public utility purposes.

**Los Angeles, Cal.**—Southern California Edison Co., Edison building, has applied to the Federal Power Commission for a preliminary permit to build a dam and powerhouse in Boulder canyon, and a second dam and powerhouse in Pyramid canyon, in the Colorado river, Mohave county, Ariz., and Clark county, Nev., for public utility purposes.

**San Francisco, Cal.**—Southern Sierras Power Co., care of W. L. Huber, First National Bank building, has applied to the Federal Power Commission for a license to build a transmission line from a line of the Southern Sierras Power Co. to Gold Mountain mine, 25 mi., for public utility purposes.

**Sonora, Cal.**—Mitchell Terzich has applied to the Federal Power Commission for a license to divert Eagle creek through a flume to a small power wheel in the Stanislaus National Forest, Cal., to develop 8-hp. for house-lighting purposes.

**Turlock, Cal.**—Bids for material for the Don Pedro dam, cost $300,000, were accepted by the Turlock and Modesto irrigation boards. The largest order went to the General Electric Co. on a bid to supply three generators, 10 transformers, switchboard and switches for $182,212. Other bids accepted were Morgan Smith & Co., York, Pa., variable turbines, $93,750.

## CANADA.

**Winnipeg, Man.**—Manitoba Power Co., Ltd., has disposed of a bond issue of $3,000,000, the proceeds to be used in connection with the erection of its proposed hydro-electric generating plant at Great Falls on the Winnipeg river, to have an initial generating capacity of about 165,000 hp. Contract for construction was awarded recently to Fraser, Brace & Co., 32 Pearl street, New York City. A. W. McLimont is vice-president.

**Carlton, N. S.**—Yarmouth Light & Power Co. is planning the rebuilding of its local power plant, destroyed by fire, Oct. 19.

## PROPOSALS.

**Washington, D. C.**—Sealed proposals will be opened in the office of the Treasury Department, supervising architect's office, Dec. 2, for kitchen equipment, installation of two electric elevators in main hospital building, sterilizers, hydrotherapeutic equipment, etc., and an ice making and refrigerating plant in the main hospital building for the U. S. P. H. S. Hospital, Norfolk, Va., Tanner's Creek site. Drawings and specifications may be obtained at the office of James A. Wetmore, acting supervising architect.

**Washington, D. C.**—Sealed proposals will be opened in the office of the Treasury Department, supervising architect's office or the office of the superintendent of construction, U. S. Public Health Service Hospital, Walla Walla, Wash., Nov. 30, for the installation of mechanical equipment for one ambulant ward, one semi-ambulant ward, boiler house and laundry, kitchen equipment, refrigerating apparatus for general kitchen, boilers, outside services, etc., in accordance with drawings and specifications, copies of which may be had at the office of the superintendent of construction, Walla Walla, Wash, or from James A. Wetmore, supervising architect's office. Bids may be forwarded to either place.

## INCORPORATIONS.

**Warsaw, Ind.**—Pence Manufacturing Co. Capital, $25,000, has been chartered to manufacture electrical and metal products. Incorporators: G. E. Polk, I. R. Klinger and H. O. Pence.

**Vincennes, Ind.**—Vincennes Electric Railway Co. Capital, $100,000. Incorporators: G. H. Armstrong, J. H. Powers, E. C. Theohold, L. Gillett and E. R. Emison.

**Syracuse, N. Y.**—Conduit Electric Supply Corp. Capital, $30,000. To manufacture electrical equipment. Incorporators: A. H. Poole and J. F. Troutman. The company is represented by Jacob G. Smith, First National Bank building, Syracuse.

**New York, N. Y.**—Standard Armature Winding Machine Co. Capital, $10,000. To manufacture electrical machinery. Incorporators: M. W. Welling, P. F. Rhoades and F. B. Hand, 52 Wall street.

**New York, N. Y.**—Wanderlet Electrical Appliance Corp. Capital, $100,000. To manufacture electrical appliances and equipment. Incorporators: G. and M. Hirschfeld, M. Deinstein and A. S. Greenberg, 110 West 40th street.

**New York, N. Y.**—H. K. Electric Corp. Capital, $10,000. To operate an electrical contracting business. Incorporators: E. C. Hobcroft and M. Friedberg, 116 Nassau street.

**Newark, N. J.**—Essex Lamp Co., 75 Livingston street, has filed notice of organization to manufacture electric lamps. Michael Portnow heads the company.

**Trenton, N. J.**—Bugbee Battery Co. Capital, $20,000. To manufacture electric batteries and other electrical equipment. Incorporators: Newton A. K. Bugbee, Alvin Bugbee and Robert H. Steele, 265 Rutherford avenue.

**Jersey City, N. J.**—Incandescent Products, Inc. Capital, $25,000. To manufacture electric lamps and other electrical products. Incorporators: Nathan and Morris G. Fredman, 665 Newark avenue.

## FOREIGN TRADE.

*[Addresses of firms referred to in these trade opportunities may be obtained by writing to the Bureau of Foreign and Domestic Commerce, Washington, D. C., or its branch and local co-operative offices. Request for each opportunity should be on a separate sheet and the file number given.]*

**Electrical Goods** (306)—The representative of a mercantile firm in Australia is in the United States and desires to be placed in touch with manufacturers and exporters for the sale of any goods which will find a ready market in Australia, especially new lines, including electrical goods, novelties, signs, etc. References.

# FINANCIAL NEWS

***Comment on the Financial Outlook in the Electrical Industry, New Securities, Reports of Earnings, Dividends and Utility Stocks***

## Reading Transit & Light Co. and Subsidiaries.

**Earnings Statement.**

| | August, 1921. | August, 1920. |
|---|---|---|
| Operating revenue... | $259,039.28 | $266,611.19 |
| Operating expenses, maintenance, taxes and rentals ..... | 230,521.03 | 238,256.48 |
| Operating income .. | 28,518.25 | 28,354.71 |

Statement of balance of net income for the 12 mo. ended Aug. 31, 1921 and 1920:

| | 1921. | 1920. |
|---|---|---|
| Operating revenue | $3,013,791.15 | $2,940,568.50 |
| Operating expenses and taxes ..... | 1,812,013.69 | 1,620,527.86 |
| Maintenance ..... | 626,687.83 | 672,471.93 |
| Rentals ..... | 327,905.70 | 327,845.52 |
| Total operating expenses, maintenance, taxes and rentals ... | 2,766,607.22 | 2,620,845.31 |
| Operating income. | 247,183.93 | 319,723.19 |
| Other income ... | 14,528.01 | 13,381.96 |
| Total income ... | 261,711.94 | 333,105.15 |
| Deductions from income: | | |
| Interest on funded debt . | 84,247.53 | 107,443.03 |
| Other deductions from income ..... | 4,878.35 | 2,700.03 |
| Total deductions from income .. | 89,125.88 | 110,143.06 |
| Net income ..... | 172,586.06 | 222,962.09 |
| Provision for dividend on preferred stock .. | 117,115.00 | 110,817.09 |
| Balance of net income ..... | 55,471.06 | 112,145.00 |

## Northwestern Ohio Railway & Power Co.

**Earnings Statement.**

| | August, 1921. | August, 1920. |
|---|---|---|
| Operating revenue... | $49,759.88 | $55,665.78 |
| Operating expenses, maintenance and taxes ..... | 37,326.89 | 35,292.07 |
| Operating income .. | 12,432.99 | 20,373.71 |

Statement of net income for the 12 mo. ended Aug. 31, 1921 and 1920:

| | 1921. | 1920. |
|---|---|---|
| Operating revenue. | $ 489,696.78 | $ 414,935.85 |
| Operating expenses and taxes ..... | 326,300.28 | 268,958.75 |
| Maintenance .... | 105,590.39 | 76,415.61 |
| Total operating expenses, maintenance and taxes ..... | 431,890.67 | 345,374.36 |
| Operating income | 57,806.11 | 69,561.49 |
| Other income.... | 412.69 | 752.28 |
| Total income ... | 58,218.80 | 70,313.77 |
| Deductions from income: | | |
| Interest on funded debt.. | 64,650.00 | 64,650.00 |
| Other deductions from income ..... | 4,000.86 | 4,274.11 |
| Total deductions from income .. | 68,650.86 | 68,924.11 |
| Net income ..... | *10,432.06 | 1,389.66 |

*Deficit.

## Southern Utilities Co.

| | 1921. | 1920. |
|---|---|---|
| September gross ....$ | 223,612 | $ 221,490 |
| Net after taxes..... | 56,199 | 35,917 |
| Total income ..... | 56,452 | 35,963 |
| Surplus after charges | 34,202 | 17,449 |
| 12 mo. gross..... | 2,836,881 | 2,515,092 |
| Net after taxes..... | 617,100 | 473,889 |
| Total income ..... | 620,075 | 475,079 |
| Surplus after charges | 367,789 | 260,100 |
| Balance after preferred dividends ... | 363,949 | 259,783 |
| Expenses and taxes of the General Gas & Electric Co. | | 16,951.60 |
| Balance ..... | | 727,193.76 |
| Interest on funded debt of the General Gas & Electric Co., including interest on income bonds ..... | | 357,204.01 |
| | $ | 369,989.75 |

## Rutland Railway Light & Power Co.

**Earnings Statement.**

| | August, 1921. | August, 1920. |
|---|---|---|
| Operating revenue...$ | 45,279.04 | $ 54,287.12 |
| Operating expenses, maintenance, taxes and rentals ..... | 34,114.42 | 42,937.43 |
| Operating income .. | 11,164.62 | 11,349.69 |

Statement of balance of net income for the 12 mo. ended Aug. 31, 1921 and 1920:

| | 1921. | 1920. |
|---|---|---|
| Operating revenue.$ | 570,346.90 | $ 539,254.56 |
| Operating expenses and taxes ..... | 356,676.01 | 310,168.13 |
| Maintenance ..... | 105,353.60 | 94,922.11 |
| Rentals ..... | 500.00 | ..... |
| Total operating expenses, maintenance, taxes and rentals .... | 462,529.61 | 405,090.24 |
| Operating income | 107,817.29 | 134,164.32 |
| Other income ... | 20,947.51 | 22,955.47 |
| Total income ... | 128,764.80 | 157,119.79 |
| Deductions from income: | | |
| Interest on funded debt . | 96,953.99 | 98,000.00 |
| Other deductions from income ..... | 1,033.22 | 3,909.95 |
| Total deductions from income ... | 97,987.21 | 101,909.95 |
| Net income .... | 30,777.59 | 55,209.84 |
| Provision for dividend on preferred stock .. | 7,580.15 | 6,384.34 |
| Balance of net income ..... | 23,197.44 | 48,825.50 |

NOTE—Earnings for period prior to Nov. 1, 1919, are adjusted to present operating conditions.

## Utah Power & Light Co.

| | 1921. | 1920. |
|---|---|---|
| August gross.....$ | 549,280 | $ 531,642 |
| Net after taxes..... | 261,657 | 244,659 |
| Total income..... | 272,560 | 258,253 |
| Surplus after charges | 127,396 | 114,174 |
| 12 mo. gross..... | 6,895,168 | 6,284,700 |
| Net after taxes..... | 3,273,704 | 2,897,227 |
| Total income..... | 3,413,080 | 3,033,492 |
| Surplus after charges | 1,687,202 | 1,361,992 |
| Balance after preferred dividends.... | 1,080,584 | 770,492 |

## Sayre Electric Co.

**Earnings Statement.**

| | August, 1921. | August, 1920. |
|---|---|---|
| Operating revenue... | $14,108.69 | $13,683.17 |
| Operating expenses, maintenance, taxes and rentals ..... | 10,217.21 | 11,701.95 |
| Operating income .. | 3,891.48 | 1,981.22 |

Statement of net income for the 12 mo. ended Aug. 31, 1921 and 1920:

| | 1921. | 1920. |
|---|---|---|
| Operating revenue.$ | 194,502.66 | $ 149,473.17 |
| Operating expenses and taxes ..... | 131,965.12 | 109,820.74 |
| Maintenance .... | 17,643.05 | 8,344.79 |
| Rentals ..... | 1,312.00 | 2,300.00 |
| Total operating expenses, maintenance, taxes and rentals .... | 150,920.17 | 120,465.53 |
| Operating income | 43,582.49 | 29,007.64 |
| Other income ... | 3,322.78 | 3,401.25 |
| Total income ... | 46,905.27 | 32,408.89 |
| Deductions from income: | | |
| Interest on funded debt . | 18,673.03 | 16,229.94 |
| Other deductions from income ..... | 4,383.53 | 4,842.95 |
| Total deductions from income .. | 23,056.56 | 21,072.89 |
| Net income ..... | 23,848.71 | 11,336.00 |

## Arkansas Light & Power Co.

The Arkansas Light & Power Co. reports gross revenues of $1,111,940 for the 12 mo. ended Sept. 30, 1921, compared with $1,108,361 for the corresponding period of 1920. Net after taxes amounted to $272,410, compared with $180,279 a year ago. Operating ratio for the past twelve months was 75.5%, against 83.7% a year ago.

## Philadelphia Co. and Subsidiaries.

| | 1921. | 1920. |
|---|---|---|
| September gross ....$ | 473,669 | $ 941,973 |
| Net loss ..... | 45,656 | *260,010 |
| 9 mo. gross ..... | 7,526,763 | 10,985,848 |
| Net earnings ..... | 1,938,331 | 4,089,322 |

*Gain.

## WEEKLY COMPARISON OF CLOSING-BID PRICES OF SECURITIES OF LEADING ELECTRICAL COMPANIES.

Quotations furnished by F. M. Zeiler & Co., Rookery Bldg., Chicago.

| Public Utilities— | Div. rate. Per cent. | Bid Nov. 15. | Bid Nov. 22. |
|---|---|---|---|
| Adirondack Electric Power of Glenns Falls, common | 6 | 12 | 12 |
| Adirondack Electric Power of Glenns Falls, preferred | 6 | 82 | 82 |
| American Gas & Electric of New York, common | .. | 115 | 116 |
| American Gas & Electric of New York, preferred | 6 | 41 | 41 |
| American Light & Traction of New York, common | .. | 95 | 95 |
| American Light & Traction of New York, preferred | 6 | 79 | 79 |
| American Power & Light of New York, common | 4 | 73 | 73 |
| American Power & Light of New York, preferred | 6 | .. | 69 |
| American Public Utilities of Grand Rapids, common | .. | 6 | 6 |
| American Public Utilities of Grand Rapids, preferred | .. | 16 | 15 |
| American Telephone & Telegraph of New York | 9 | 111 | 110 |
| American Water Works & Elec. of New York, common | .. | 6 | 6 |
| American Water Works & Elec. of New York, particip | 7 | 16 | 16 |
| American Water Works & Elec. of New York, 1st preferred | .. | 60 | 59 |
| Appalachian Power, common | .. | 5 | 6 |
| Appalachian Power, preferred | 7 | 51 | 50 |
| Cities Service of New York, common | +extra | 219 | 217 |
| Cities Service of New York, preferred | 6 | 60 | 61 |
| Commonwealth Edison of Chicago | 8 | 110½ | 110 |
| Comm. Power, Railway & Light of Jackson, common | .. | 9 | 9 |
| Comm. Power, Railway & Light of Jackson, preferred | 6 | 25 | 26 |
| Federal Light & Traction of New York, common | .. | 8 | 8 |
| Federal Light & Traction of New York, preferred | .. | 60 | 61 |
| Northern States Power of Chicago, common | .. | 60 | 61 |
| Northern States Power of Chicago, preferred | ex.div.7 | 80 | 81 |
| Pacific Gas & Electric of San Francisco, common | .. | 62 | 62 |
| Public Service of Northern Illinois, Chicago, common | 7 | 81 | 80 |
| Public Service of Northern Illinois, Chicago, preferred | 6 | 81 | 80 |
| Standard Gas & Electric of Chicago, common | .. | 9 | 10 |
| Standard Gas & Electric of Chicago, preferred | 8 | 35 | 36 |
| Tennessee Railway, Light & Power of Chattanooga, common | .. | 1 | 1 |
| Tennessee Railway, Light & Power of Chattanooga, preferred | 6 | 5 | 5 |
| Western Power of San Francisco, common | .. | 29 | 28 |
| Western Union Telegraph of New York | .. | 88 | 90 |
| Industrial— | | | |
| General Electric of Schenectady | 8 | 133 | 134 |
| Westinghouse Electric & Mfg. of Pittsburgh, common | 7 | 46½ | 47 |